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ABSTRACT

For twenty years, the DACUM (Developing a Curriculum) model has been used for the design of occupational programs at the secondary and postsecondary levels as well as the design of training programs for business and industry. Over the past five years, the Maryland DACUM Resource Center project has disseminated the DACUM model among the community colleges of the state to support the development of exemplary curricula and address area labor market needs. In 1990 an evaluation was conducted of the Maryland DACUM Resource Center to assess the scope, quality and impact of the products and services of the Center. The six activities included in the Maryland project were: (1) DACUM chart development, curriculum design, and instructional development; (2) DACUM model development and refinement; (3) personnel development; (4) Resource Center organization and operation; (5) response to technical committee requirements and initiatives; and (6) personnel and administrative support. Documentary inquiries, surveys, and interviews resulted in quantitative and qualitative data from administrators, facilitators, and faculty as well as the Center staff. All of Maryland's community colleges participated in phase I training--chart development, with nearly all (93%) completing phase II training--curriculum planning, and with some (40%) continuing into phase III training--instructional development. Surveys of the three phases of DACUM indicated that they were all considered very effective, especially phase III which was the focus of the most recent research and development. The strengths of the program included aspects of both the training process and its content, represented by such items as on-site support and mentoring, and the overview and presentation of DACUM principles and process. Areas for further development included program development and institutional impact and support. Five recommendations were developed to support expanded service delivery, selected application development, and publication production. Appendixes provide the evaluation design and protocols, documentary inquiry data, survey data, and interview data. (JMC)

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MARYLAND DACUM RESOURCE CENTER
DUNDALK COMMUNITY COLLEGE
PROJECT EVALUATION REPORT
1989-1990

Submitted to
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FORWARD

The 1990 DACUM Evaluation Report has been prepared with the support of the staff of the DACUM Resource Center and the assistance of the administrators and faculty of participating colleges who responded to surveys and participated in the Advisory Committee review.

Special appreciation is extended to the administrators and faculty of Anne Arundel Community College, Catonsville Community College, Charles County Community College, and Garrett Community College for their participation in extensive interviews for the evaluation.

We hope that this report will prove beneficial as the DACUM Resource Center continues to refine and expand its services to schools and colleges across the State of Maryland.

Katherine L. German, Ph.D.
Koosappa Rajasekhara, Ph.D.

June, 1990

MARYLAND DACUM RESOURCE CENTER
1989-1990 EVALUATION REPORT

EXECUTIVE SUMMARY

The purpose of the 1990 DACUM Resource Center Evaluation was to assess the overall quality of the Maryland DACUM Resource Center project. Over the past five years, the project has disseminated the DACUM model among the community colleges of the state to support the development of exemplary curricula and address area labor market needs. The six activities included in the project focused on DACUM chart development, curriculum design, and instructional development; DACUM model development and refinement; personnel development; Resource Center organization and operation; response to Technical Committee requirements and initiatives; and personnel and administrative support. The institutional sponsor for the project was Dundalk Community College and the funding agency was the Maryland Department of Vocational-Technical Education.

Literature Review

The literature on DACUM indicates that, since its design twenty years ago, this structural, highly analytical model has been used primarily for the design of occupational programs at the secondary and post secondary levels as well as the design of training programs for business and industry. DACUM has proven extremely effective and highly adaptable, resulting in numerous special applications ranging from student advising and career counseling to the assessment of institutional effectiveness and from job development to performance appraisal. The direct benefits of the model include effectiveness and efficiency, validity and reliability, and promotion and development, as well as increased ownership and commitment and the growth of business/industry partnerships with education.

Methodology and Procedures

The evaluation design examined the scope, quality, and impact of the products and services of the Center. The evaluation provided both formative data in the continuing research and development efforts of the Center as well as summative data on the Center's development, accomplishments and impact. Documentary inquiries, surveys, and interviews resulted in quantitative and qualitative data from administrators, facilitators, and faculty as well as the Center staff. Data collection began in the Fall with inquiries of the Center staff and continued into the Spring with the survey and interview of participants. Data analysis and presentation was completed by the conclusion of the academic year.

Findings and Results

The inquiry into overall project achievements revealed that the Center has produced numerous improvements, extensions and modifications to the DACUM chart development process, the curriculum planning process, and the instructional development process. Networking has resulted in increased liaisons, affiliations, and agreements, and numerous presentations at the county, state, and regional levels.

All of Maryland's Community Colleges have participated in Phase I training, Chart Development, with most (93%) completing Phase II training, Curriculum Planning, and some (40%) continuing into Phase III training, Instructional Development. 80 Phase I charts and 42 Phase II curriculum plans have been produced at the postsecondary level in addition to two Technical Committees, one on horticulture and one on printing, using the TechScan process, TAP, and DACUM at the secondary level.

Surveys of the three Phases of DACUM indicated that they were all considered very effective, especially Phase III which has been the focus of recent research and development. The strengths of the program include aspects of both the training process and its content, represented by items such as on-site support and mentoring and the overview and presentation of DACUM principles and process. Relative areas for further development include such items as program development and institutional impact and support. Training videos, 'hands-on' practice, information on potential markets, and sessions on DACUM variations as well as additional training are also suggested.

Interviews with four participating institutions provided insights into the characteristics of highly successful institutions. Critical conditions include such items as the level of need for the program, the ability to integrate the program into the institution, institutional leadership and support, and the recognition of business and industry as well as the state.

Among the DACUM staff, their collective ability to take risks and provide support were central to their success, as was their ability to develop confidence through their knowledge of, structure of, and utility of their products and their ability to export the program. During the project, the staff learned a great deal about research and development as well as resource allocation. Areas for future development include articulation, TRU and TechScan, outcomes assessment, and customized training.

Conclusions and Recommendations

The following recommendations are designed to support expanded service delivery, selected application development, and publication production:

1. Over the next year, a transitional year, the Maryland DACUM Resource Center should design a five year plan focusing on the continued refinement of the design and funding, the programs and services, and the development and publications of the Center.

2. As a part of the five year plan, the Center should consider the potential of promoting an outreach network for collaborative program development, materials production and dissemination, and training and technical program assistance across the state.

3. Within the area of program development, the DACUM Resource Center should consider the design of specific techniques focused on the institutionalization of the DACUM process and the design of linkages with significant educational and economic issues such as program articulation, the assessment of institutional effectiveness and student learning, and the development of markets for customized training.

4. Within the area of materials production and dissemination, the DACUM Resource Center should consider the continued refinement of training programs relating to DACUM and its variations and the development of a series of training videos designed to augment the acquisition of critical skills and concepts.

5. Working collaboratively with the state Departments of Education and Economic and Employment Development over the next year, the Maryland DACUM Resource Center should produce multiple-year projects designed to support the continued development of Departmental curricular goals and to advance the economic impact of manpower training and development.

With an impressive record of achievement, it is clear that the Maryland DACUM Resource Center merits the continued support of the state and that the programs and services of the Center require continued elaboration, application, and dissemination.

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MARYLAND DACUM RESOURCE CENTER

PROJECT EVALUATION REPORT

INTRODUCTION

The Maryland Postsecondary DACUM Resource Center (DRC) is a multi-year project operated by Dundalk Community College with funding from the Maryland State Department of Education, Division of Vocational-Technical Education. The overall purpose of the project is to disseminate the DACUM model among the community colleges of the state to support the development of model curricula that address Maryland's labor market needs. The DACUM process, recently revitalized by the National Center for Research in Vocational Education, has been adopted, modified, and elaborated by the Center as a method for systematically identifying educational competencies related to the requirements of selected occupations and producing necessary curricula.

The DACUM Resource Center has completed its final year of a five year program. The six activities undertaken by the project include: (1) chart development, curriculum design, and instructional development; (2) DACUM model development and refinement; (3) personnel development; (4) Resource Center organization and operation; (5) responses to Technical Committee requirements and initiatives; and (6) personnel and administrative support.

An Advisory Committee has provided general oversight and feedback for the DACUM Resource Center for the duration of the project. Members of the Advisory Committee include:

Gary Durr	Allegheny Community College
Dr. Elizabeth Mathias	Anne Arundel Community College
Elizabeth Blake	Carroll Community College
Mr. Michael Carey	Catonsville Community College
Susan Ferenz	Cecil Community College
Mrs. Andrea Smith	Charles County Community College
Mr. Thomas Leitzel	Chesapeake College
Ronald Wright	Community College of Baltimore
Rosalie Russell	Essex Community College
Dr. Lillian Mitchell	Garrett Community College
Barbara Macht	Hagerstown Junior College
Dr. James Murtha	Harford Community College
Pam Cornell	Howard Community College
Margaret Ross	Prince George's Community College
Dr. Stephen L. Capelli	Wor-Wic Technical Community College
Mr. David Kimmel	Maryland State Department of Education Division of Vocational-Technical Education
Dr. Rose Mary Bengel	Maryland State Department of Education Division of Vocational-Technical Education

Ms. Doris Sharkey	Maryland State Department of Education Division of Vocational-Technical Education
Dr. Joseph P. DeSantis	Maryland State Department of Education Division of Vocational-Technical Education
Dr. Jean Hunter	State Board for Community Colleges
John Hamilton	State Board for Community Colleges
Paige Russell	Department of Employment and Economic Development
Dr. Martha Smith	Dundalk Community College
Dr. Thomas Sepe	Dundalk Community College
David Flumbaum	DACUM Resource Center
Dennis Faber	DACUM Resource Center
Nancy Jones	DACUM Resource Center
John Low	DACUM Resource Center
Penny Alexander	DACUM Resource Center
James Bruns	DACUM Resource Center
Ed Fangman	DACUM Resource Center

The institutional sponsor for the Maryland Postsecondary DACUM Resource Center project is Dundalk Community College located in Dundalk, Maryland. The staff for the project includes: David Flumbaum, Project Director; Dennis Faber, Project Coordinator; Penny Alexander, James Bruns, Nancy Jones, John Low, trainers and facilitators; Teddie Welsh, DACUM Coordinator, and Ruby Graul, Cindy Thall, and Toni Peterson, Resource Center Support staff.

The purpose of the DACUM Resource Center Evaluation was to assess the quality of the Center's activities including the outcomes achieved, the processes used, and the impact of the DACUM Resource Center activities on participating community colleges. The evaluation team, consisting of two members, Dr. Katherine L. German and Dr. Koosappa Rajasekhara, conducted the evaluation. The report which has resulted is based on interviews with the DACUM Resource Center staff, responses to survey questionnaires by administrators and faculty of the participating institutions, and interviews with administrators and faculty of selected participating community colleges. In conjunction with a review of the literature on DACUM and the results of previous evaluative studies conducted in conjunction with the DRC project, the report presents a series of conclusions relative to project effectiveness and recommendations for future directions which might be supported through subsequent DACUM Resource Center projects.

I. REVIEW OF LITERATURE

DACUM, an acronym for "Developing A Curriculum", is a systematic approach to the development of curricula through occupational analysis. In the DACUM process, a panel of occupational experts is convened. Working with a facilitator over several days, the panel produces a list of general areas of responsibility subdivided with specific tasks required to enable an individual to perform competently within that general occupational area. The resulting performance profile, or chart, is then refined and sequenced into a matrix which serves as the occupational analysis to be used for curriculum construction.

History

The DACUM process was designed as a result of efforts to produce training programs for the Job Corps. Established in 1964 by the Economic Opportunity Act, the Job Corps prepared disadvantaged young adults for responsible citizenship and employment. To develop these programs, participants used a job analysis technique which listed the attitudes and skills needed to be successful in a selected occupational field. The resulting profile was used both as a training tool and a record of achievement for participants in the Job Corps.

As the United States was expanding the Job Corps, the Canadian Federal Government initiated an Experimental Projects Branch to create a series of action research projects, called NewStart Corporations, to upgrade vocational training and economic achievement for disadvantaged adults. These programs required an approach to curriculum planning and development which responded rapidly with relevant training programs in curricular form (Adams, 23). In 1967, Howard Clement, an official from the Department of Manpower in Canada, visited the Women's Job Corps in Clinton, Iowa and was impressed with the analytical approach being used. Dr. Oliver Rice, of the General Learning Corporation (Mitchell, 2), devised the method used in Clinton "to produce a curriculum guide that would enhance trainee involvement in the training program and in planning for goal attainment," (Norton, 75). The method resulted in a graphic representation of the curriculum resembling a bar chart which planners and participants could use to develop the curriculum, provide instructional resources, and monitor progress.

In 1968, Dr. Rice was invited to work with Howard Clement to develop the model and produce materials for distribution to the Canadian NewStart Corporations (Mitchell, 3). By the next year, a text, Designing A Curriculum (DACUM) was published accompanied by a number of materials including programmed texts, workbooks and transparencies as well as a film demonstrating the process. The resulting model and supportive materials were presented to NewStart representatives in 1969. Following that meeting, R. E. Adams of Nova Scotia, impressed with the graphic form of the model, began to refine the process. In 1969, DACUM was adopted by Holland College in Charlottetown and Humber College of Applied Arts and Technology in Toronto, Canada. Since then, DACUM has been widely used both as a curriculum base and an appraisal instrument by many postsecondary colleges throughout the country (Norton, 75).

In 1975, Robert E. Norton and James B. Hamilton learned of the DACUM model and, in 1976, employed Larry Coffin of Holland College to facilitate the first DACUM at the National Center for Research in Vocational Education located at Ohio State University. Over the next few years, many DACUM occupational analyses were conducted for a variety of occupations in numerous diverse settings both by the staff of the National Center and others trained in the use of the model.

Since then, DACUM has changed dramatically, influenced both by changes in the organization of education and by the development of knowledge about how people learn (Mitchell, 4). Originally the process included curriculum design, instructional planning, and resource allocation. However, because of institutional differences and the needs of adult learners, a distinction was made between curriculum and instructional development. Because curriculum requires a measure of validity, while instruction requires a measure of flexibility, as the DACUM process was refined and as it evolved, it focused increasingly on curriculum and less on instruction.

By 1982, the National Center for Research in Vocational Education had produced the research that led to the development of the DACUM Handbook, as well as guidelines for a formalized DACUM coordinator/facilitator training program (Norton, 76). The following year, training was provided internationally, and, in 1984, the National Center produced its first DACUM Training Institute. By 1985, the Maryland DACUM Resource Center was implemented to apply and continue the development and refinement of the DACUM model. As a result, the model has been further adapted and extended into the areas of curriculum design and instructional development (Faber and Alexander-Jung and Fangman and Low).

Since then, the National Center as well as Maryland's DACUM Resource Center and many other institutions of higher education both nationally and internationally have used and promoted the DACUM process for curriculum development and numerous other applications. To date, over 75 articles and reports have been entered into the research data base documenting the development and application of the DACUM process in curriculum development and review as well as areas such as competency test development and student assessment, counseling and recruitment; organizational training needs assessments, the development of position descriptions and performance appraisals; and measures of institutional effectiveness (Norton, 1).

The DACUM Model

DACUM is a structural model of curriculum development based upon a systems approach to training. Therefore, it has "an organizational element to its philosophy and certainty to its impact" (Anderson and Jones, 1986, 62). Historically viewed as a method for detailing the psychomotor domain, the model has evolved to the point at which it presently describes the conceptual domain as questions of knowledge and skill are addressed.

As stated in the DACUM Handbook, DACUM operates on three premises:

1. Expert workers are better able to describe/define their job than anyone else.
2. Any job can be effectively and sufficiently described in terms of the tasks that successful workers in that occupation perform.
3. All tasks have direct implications for the knowledge and attitudes that workers must have in order to perform the tasks correctly. (Norton, 1)

Through a carefully sequenced process, a selected occupation is analyzed beginning with a review of the job under consideration and followed by the definition, review, refinement and sequencing of general areas of responsibility and specific tasks required for successful performance in the occupational area. The resulting

DACUM chart provides a graphic representation or profile of the occupation from which the curriculum is planned and instructional methods developed.

The DACUM Process

Implementation of the DACUM model requires a coordinator who actually plans the occupational analysis process and provides for the verification of tasks. (S)he makes all of the necessary arrangements including the selection of the panelists and the facilitator as well as the facility. Together, over a two to three-day period, the panelists and the facilitator produce the DACUM chart through modified brainstorming techniques designed to obtain the collective expertise and consensus of the panel (Norton, 1). The coordinator, then, ensures the completion of the entire DACUM process including chart production.

The DACUM panel consists of from eight to twelve practitioners who are currently engaged in the occupational field under analysis. Their role throughout the process is one of sharing personal experience with and knowledge of job performance, discussing various aspects of their jobs to clarify and reach consensus relative to job performance statements to be included in the DACUM chart.

Ideally, the panelists should be considered experts by their peers and have significant experience in the field. A portion of the panel, up to 20 percent, (Harris, 4) may consist of supervisors who once performed the selected job and moved into management. Panelists should represent companies of varying sizes with consideration given to the products and services produced as well as specializations within the specific occupational field. Additionally, individuals selected for the panel should represent geographic areas to be served by graduates of the program, i.e., local, regional, national, or international markets. And, finally, they should possess strong verbal abilities, confidence, and group skills to support the presentation of their ideas and interaction with the group throughout the DACUM process.

The facilitator, like the panelists, must also have strong verbal abilities, interpersonal and group skills. (S)he must be an active listener with strong clarification abilities and conflict resolution skills. However, (s)he must also have experience with the DACUM process, a highly structured system of job analysis which has specific parameters and task sequences. Because the facilitator leads and encourages the panel, controlling the DACUM process without directing the panel, (s)he establishes the pace and balance of group participation, seeking clarification and probing for details before moving toward closure and agreement across the panel. Therefore, a sensitivity and empathy for others, patience and decisiveness, and a sense of humor are extremely helpful. During the group process, the actual DACUM chart is constructed through the clarification of performance statements and the development of consensus among the panel members on each specific performance statement.

With the guidance of the facilitator, the DACUM Handbook (Norton, 1,2) indicates that the panel completes the following steps:

1. Orientation to the DACUM process
2. Review of selected job or occupational area
3. Identification of general areas of responsibility(duties)
4. Identification of specific tasks performed in duty areas
5. Review and refinement of task and duty statements
6. Sequencing of task and duty statements
7. Identification of entry-level tasks

Through these steps, the panelists are familiarized with the DACUM process and a degree of comfort is established. The facilitator then works with the panel to define the occupation by discussing and establishing the parameters of the job, resulting in a one sentence definition to be posted as a guide to the balance of the process. With the job defined, the panelists work to define the areas of competence which are placed on a blank wall as a column. Next, bands of measurable, action-oriented performance statements are developed for each area of competence and posted on the wall to the right of each area. Once all of the bands are completed, reviewed, and refined, areas and bands are sequenced and linked to the original definition or description of the job (Harris, 7).

The DACUM process generally produces a chart consisting of from 8 to 12 duties and 50 to 200 task statements outlining successful job performance (Norton, 2) which may then be submitted to a group of workers for further verification. Once verified, these tasks form the research base for the design of the curriculum. At that point, the educators involved in the delivery of the curriculum become involved in the process, building upon the foundation of successful job performance established by the workers.

In the original model, the curriculum design phase was completed by program developers and included all of the developmental stages from the identification of skills to the production of instructional plans and resources. However, because these plans required instructor modification to meet the needs of individual students and work within the constraints of the implementing institution, the curriculum design phase was eliminated, resulting in the use of DACUM exclusively for program design, not instruction (Mitchell, 14). Over the past four years, however, the curriculum design and instructional development phases of the DACUM model have been revitalized and refined through the Maryland DACUM Resource Center.

The Curriculum Design Phase of the process presently requires a one-day workshop resulting in the development of an initial curriculum plan based upon the information generated through the DACUM chart development process. Nine assumptions provide a foundation for the curriculum planning process, each addressing such issues as the importance of synthesis and evaluation; the need for participation and teamwork; the necessity of training for flexibility, quality, and consistency; and importance of organizational support. The actual curriculum planning process involves a panel of technical and general education faculty, program directors and division chairpersons, supervisors or trainers from business and industry, and representatives of the original DACUM panel. During the workshop, the information identified through the DACUM process is reorganized into a curriculum plan including appropriate degrees and certificates or other delivery options as well as courses or units, their sequences, credits, and prerequisites (Faber and Alexander-Jung, 1). Given the previous criticism of curriculum design as a phase of the DACUM process, the revised Curriculum Planning Process ensures organizational adaptability and facilitates articulation with the curriculum development philosophy, policies and procedures of the implementing institution.

Similarly, the Instructional Development process is completely tailored to the organization's instructional philosophy, policies and procedures. Instructional development addresses the design of educational programs and courses as well as corporate training programs (Fangman and Low). In this phase of the DACUM process, the program designer refines the course sequence to construct and validate the course hierarchy and develops program goals and objectives tied to focus statements and duty statements. (S)he then develops curriculum matrices to depict the introduction, reinforcement, and mastery of program goals and objectives through individual courses and creates a composite description of student characteristics. Finally, the program designer develops program evaluation and revision techniques including measures of student learning and job performance.

The materials produced by the program designer are subsequently used by the course designers, often faculty, to conduct a task analysis and develop course goals and objectives, construct learning hierarchies including pre-requisite skills as well as cognitive, affective, and psychomotor skills, and develop performance measures. With this material, the course designers produce syllabi as well as procedures for the evaluation of student learning, course materials, and instructional delivery to revise the courses as appropriate.

The Instructional Development process for business and industry is similar. For the business sector, the training-program designer constructs learning hierarchies and develops training goals and objectives. Once completed, the designer produces criterion referenced measures to assess trainee learning outcomes and creates a composite description of trainee characteristics in the form of a learning profile to ensure program compatibility. Finally, the designer develops teaching/learning styles and techniques with effective materials, activities, and delivery methods and creates an evaluation plan to ensure program revision and effectiveness. Using these processes, training programs can be developed over a period of 4 to 6 weeks (Faber, 7), ensuring both effectiveness and impact.

Applicability of DACUM

Perhaps the major strength of the DACUM process is that is provides ordered data conducive to full scale curriculum development where an entire instructional system is required (Thompson and Murphy 12) Given its structure, the process is particularly useful for institutions which also employ a competency-based approach. However, whether or not competency-based education is used, DACUM supports the production of a relevant, contemporary, localized curriculum base. It has demonstrated its utility not only in terms of researching the competencies required for a new curriculum, but also in terms of researching the competencies required for existing curricula, allowing institutions to update and tailor programs to ensure their continuing relevance. Because of its cognitive focus, educators can readily convert DACUM performance statements into competencies, learning activities and assessment measures. Moreover, the DACUM research base is determined with input from the businesses and industries which will employ program graduates.

To date, the DACUM process has been used to develop, to validate, and to revise educational curricula and customized training programs in virtually every occupational field, from microcomputers (Tesolowski and Roth) and information systems (Everett) to machine operators (Leslie and Dimitrick) and the steel industry (Day). Because DACUM is adaptable, it supports the design of programs which provide adult learners with the opportunity to learn in ways which suit their individual characteristics (Adams). Some institutions have noted the use of the process for the development of innovative training aids (Christner), while others have used the process to determine the competencies required of professionals both within (Norton; Shears) and beyond the occupational area (Dickens; Coffin and Sands; Smith). Through academic channels for program development and governmental or corporate channels requiring customized training, the DACUM process has proven a viable, cost-effective mechanism for the design of programs which promote education and training and contribute to economic development of the service area.

In addition to the intended applications of the DACUM process, however, the National Center and numerous other users indicate that the process has been employed for many other "special applications". Within the occupational area, modified DACUMs such as TAP, a TAsk Process conducted by the Maryland DACUM Resource Center, have been developed. Based upon literature reviews, these modifications use the DACUM panel to review, modify, and validate the duty and task statements derived from the literature and complete the panel in a single day rather than in two days. Similarly, the DACUM process has been used to reassess curricula, to analyze the requirements of a specific portion of a job and substantiate the development of a subset of a curriculum, or to substantiate and assess the competencies required of and demonstrated by educators (Norton, 5). Others have created such innovations as TechScan, a pre-DACUM environmental screening process designed through the Maryland DACUM Resource Center, and DACUM PLUS, a process to include site visits to the industry as a means of increasing levels of awareness and understanding of the job under review reported by Klingman and Gardner, Scribner.

Beyond curriculum and instruction, DACUM is also used to serve the students. The process has frequently been used to recruit students and to support academic advising and counseling, providing explanations to students regarding the skills required for their chosen occupation and the relevance of their coursework. Harris (8,9) also indicates that DACUM charts can be used for the granting of both transfer and experience credit by comparing work completed with institutional requirements, a use substantiated recently through a Ford Foundation Grant at Miami-Dade Community College (Dunn and Greb). Moreover, students can use the chart to serve as an assessment measure as they move through their educational program, a use currently under development at the Maryland DACUM Resource Center, and, later, as a tool to prepare for job interviews.

Given the current emphasis on quality and accountability, perhaps the most promising educational application of the DACUM process is that of institutional evaluation. While Harris (10) describes the use of the process to determine resources required for program implementation, more recent developments have related the process to the issue of overall institutional effectiveness. For example, the National Alliance of Community and Technical Colleges (Newton) has recently completed a chart of effectiveness indicators developed using the DACUM process. This chart serves as the first phase in the development of a model of institutional effectiveness to be elaborated in the future. Such innovations speak to the overall utility of the DACUM process as a structured, systematic analytical tool.

Results of DACUM

The direct benefits of the DACUM process on curriculum design are numerous. First and foremost, the structure and procedures of the process provide for effectiveness and efficiency. Second, the profile produced through the DACUM process compares favorably in validity with any other method of curriculum development. Third, the National Center acknowledges the public relations value of the process for the institution with its business and industry partners. In fact, the Center and others have indicated that it is not unusual for business and industry partners to offer resources, such as equipment, supplies and instruction and to support continued inservice training (Norton, 3).

However, there are many other benefits to be derived from the DACUM process for both industry and education. Industry participation in the process and, subsequently on Advisory Committees, results in increased ownership of and commitment to the curriculum or specific training program. Employers, therefore, are assured that graduates have received valid, relevant training for their specific needs and achieved specific levels of competence required for successful job performance. As a result, industry feels supportive of specific skill development, often resulting in increased willingness to donate funds and equipment, as well as personnel to the institution. Moreover, industries have begun to use DACUM charts to support human resource development and performance appraisal (Harris, 11).

Education benefits from the DACUM process in that it is logically based, highly relevant and contemporary while and providing for instructional flexibility. Instructors use the results to define the necessary information and skills, e.g., cognitive, attitudinal and motor, to be incorporated into the instructional program. Once defined, necessary teaching techniques, resources, and evaluation strategies can be developed (Mitchell, 12). Both educators and students can be assured that program competencies are relevant to the occupation, thus increasing student learning as well as employment possibilities for the student upon graduation. Students use the competencies which result from the process to provide a sense of direction and accomplishment, assured that their education is applicable to future employment in their field (Mitchell, 17,18). And, finally, articulation, transfer, and prior experience are strengthened, allowing students to avoid duplication in their educational programs (Harris, 11).

Given the developmental history of the DACUM process, its adaptability and widespread applicability, current projections suggest that the model will continue to evolve. The trend over the past twenty years has revealed increasing interest in the DACUM process as well as increasing use of the process. The experience of the Maryland DACUM Resource Center supports that trend, both within and beyond the state. As economies continue to change and issues of accountability, productivity, and cost-effectiveness continue to confront postsecondary institutions, models such as DACUM can be expected to play an increasingly significant role in the design of curricula for education and training.

II. METHODOLOGY AND PROCEDURES

The evaluators, in conjunction with the staff of the DACUM Resource Center (DRC), designed an evaluation process which examined the scope, the quality, and the impact of the products and services of the Center over the past year. In creating the design, the evaluators and the DRC staff built upon the foundation of previous evaluations, integrating those results and following recommended lines of investigation. The evaluation, therefore, provides formative data on continuing research and development efforts of the Center including the vitality of Phases I and II of the DACUM process as well as the refinement of Phase III of the process. However, the evaluation also provides summative data on the development of the Center itself, including its overall accomplishments and impact.

Documentary inquiries, surveys, and interviews were used to collect data on the three Phases of the Center's DACUM program as well as the accomplishments and impact of the Center. These data collection methods resulted in both quantitative and qualitative responses, allowing the evaluators to assess the effectiveness of the processes used by the Center as well as the outcomes and their impact. Data sources included college administrators, facilitators, and faculty as well as the DRC staff and members of the DACUM Board.

Documentary Inquiries

The staff of the DACUM Resource Center was asked to respond initially to a direct inquiry into the development, responsiveness and achievement of the Center throughout the course of the project. Three separate protocols were developed to complete this inquiry. The first protocol was designed to document the status of the Center's development and level of achievement. These questions focused on three major categories: research design and dissemination; networking; and technical assistance for participating institutions. The second protocol was designed to document the status of technical support for the Division of Vocational Technical Education. These questions focused on accomplishments relative to Tech Scan, the TAsk Process (TAP), and COmpetency Profile Development (COP). And the third protocol was designed to document the Center's responses to the three recommendations resulting from the 1989 project evaluation. Responses to these documentary inquiries were prepared in written form by the DACUM staff during the course of the project year.

Phase I, II, and III Surveys

Two separate surveys were constructed to assess the outcomes, process and impact of each of the three phases of the training offered through the Center. The design of each survey included inquiries into the participant's background relative to the DACUM process, perceptions of the effectiveness of the area under review presented with a four-point Likert-type scale moving from highly effective to ineffective, and open-ended questions. Each survey was introduced by the Project Director mid-year and accompanied by a second request for completion approximately one month following the initial request.

The Phase I and II survey addressed the major components of those training programs including the orientation, Phase I chart development, and Phase II curriculum planning as well as program improvement and support. The Phase I/II Survey was sent to those administrators, facilitators and faculty who had participated directly in the DACUM training program. The overall response rate for the 54 Phase I/II participants was 53 percent.

The Phase III survey similarly addressed the major components of that training program including the orientation, academic program design and construction, academic course design and construction, and training program design, construction and implementation. Participants were asked to respond only to those areas for which they had received training. However, in addition to direct programmatic inquiries, the Phase III survey also inquired of the source of participant interest in the program, the effectiveness of the training program, and the projected impact of the program. Finally, the Phase III survey asked participants for an indication of their interest in having the Center continue to provide DACUM activities. The Phase III Survey was sent to those administrators, facilitators and faculty who had participated directly in the Center's Phase III training program. The overall response rate for the 39 Phase III participants was 41 percent.

Interviews

Sequential interviews were conducted at Dundalk Community College with two groups of project participants. First, during the winter, project staff were asked to share their perceptions of the overall development, the achievements, the impact, and the future of the Center. Within each of these three major categories, inquiries requested characterizations of achievements, assessments of relative levels of success and satisfaction, and projections of potential impact, refinement, and enhancement. Additionally, project staff were asked for their perceptions of the requisite conditions for successful implementation and institutionalization of the DACUM process. These perceptions were intended to serve as benchmarks which might be affirmed through the institutional interviews which followed.

Following the completion of the staff interviews, administrators and faculty of four participating community colleges were interviewed to provide case histories relative to the implementation of DACUM. The interview protocol was structured to obtain basic background information first to serve as an institutional description. This initial request was followed by an inquiry into the institution's use of the DACUM process and the results achieved. Finally, the interview concluded with requests for participants to relate "critical incidents", or actual experiences, describing the most and least successful applications of the DACUM process on their campus. Probes into the incidents were designed to provide further clarity, specificity, and examples of the characteristics illustrated by each incident relayed.

Criteria for the selection of the participating institutions included geographic location, service area demography, institutional size, and level of participation in the Center's DACUM activities. Representatives of the following four institutions participated in the half-day interviews conducted during the spring: Anne Arundel Community College, Catonsville Community College, Charles County Community College, and Garrett Community College.

The 1990 Project Evaluation was designed to extend and complement data previously gathered on the project through the evaluations of 1988 and 1989, as well as the impact study completed during the last year. Data collection methods and procedures for the evaluation were constructed to support the integration of quantitative and qualitative data across the two data sources utilized, the Center staff and participating institutional representatives, to produce a final evaluation that simultaneously provides insight into the success of the project and the potential of the Center. Appendix A contains a copy of the evaluation design as well as copies of each of the protocols developed and implemented for the documentary inquiries, the surveys and the interviews.

III. FINDINGS AND RESULTS

The results of the 1990 DACUM project evaluation were analyzed within the three methodological categories previously described: documentary inquiries, surveys, and interviews. The presentation which follows presents a synthesis of the data gathered with actual commentaries presented in Appendices B,C, and D.

Documentary Inquiries

Documentary inquiries focused on the status of center development and overall project achievements, the status of DVTE technical support, and the status of recommendations made in the 1989 project evaluation.

Status of Center Development and Overall Project Achievements

The initial inquiry examined four key areas of development and achievement specified in the project design including research, design, and dissemination; networking; technical assistance for participating institutions; and a listing of participating institutions and the levels of training provided to each.

In the area of research, design, and dissemination, the Center has made several improvements, extensions, and modifications to the

DACUM chart development process including: refinements in techniques and criteria for effective task statement development; listings of knowledge and skills, tools and equipment, and traits and attitudes; development and refinement of a one-day process (TRU); and facilitation techniques for chart development.

The Curriculum Planning Process, too, was further developed and refined with the production and copyright of a manual and the incorporation of activities and techniques into CPP workshop materials and training activities.

The instructional development component was substantially reconceptualized and refined to complement institutional practices while addressing the information generated during the first two phases of the DACUM process, thereby increasing the program's responsiveness to individual and campus needs.

And, finally, on-site training of facilitators and coordinators was refined to include an orientation which supports the integration of DACUM training with on-going activities, criteria for the selection of appropriate training participants, simulations and application exercises and restructured didactic and observational components allowing for increased tailoring and adaptation to organizational needs.

Networking activities have included the preparation of a catalog listing all Maryland DACUM charts which is available for dissemination upon request. Additionally, the Center has maintained active liaisons with several national, regional and local curriculum networks and resources, among them the East Central Curricula Network of NVCCVTE, Humber College's DACUM Exchange, Spokane Community College, and Holland College.

The Center has established a networking agreement with Open Entries, garnering the opportunity to highlight services and activities of participating institutions. And finally, working ties have been established with The Center for Education and Training Employment (CETE-Ohio State), the Center for Instructional Development and Education and the Instructional Systems Design graduate program at the University of Maryland and the Eastern Regional Competency-Based Education Association.

Both through these affiliations and the efforts of the Center's Advisory Committee, the DRC staff has made numerous presentations to state and county boards and departments, educators and employers and produced such activities as a pre-conference workshop during the ERCBE conference using panelists from across the nation.

Technical assistance for participating institutions, provided in a variety of forms and upon request, has included training for college personnel, staff development and in-service training. The types of assistance requested both by individuals and institutions have included development and consultation with on-campus coordinating groups, presentations to promote DACUM, extended orientations, and special program modifications. Other special projects at the Center, such as the annual facilitator's exchange, have provided numerous opportunities for the staff to apply their talents and benefit from the experiences of others.

An analysis of participating institutions and levels of training indicates that, over the course of the project, 15 Maryland Community Colleges have participated in Phase I training, with 93 percent continuing on through Phase II training, and 40 percent completing Phase III training. Together these institutions have produced 80 Phase I charts and 42 Phase II curriculum plans. A comprehensive listing has been included in Appendix B.

Status of DVTE Technical Support

Over the last year of the project, the Center provided technical support to DVTE in three areas: hosting Technical Committees and conducting a Tech Scan Process, facilitating the DACUM or TAP Process for six occupational areas, and printing curriculum packages. Support projected in a fourth area, facilitating Competency Profile Development (COP) for six occupational areas, was altered.

Two Technical Committees were held at the College, one on horticulture and one on printing. A Tech Scan process facilitated by the Center staff was successfully conducted on the latter on September 20, 1989. Following work with the Technical Committees, six TAP's were conducted, five in the area of horticulture and one in the area of printing, and two DACUM's were conducted, both in the area of printing. An alternative activity proposed to replace the development of competency profiles addresses the exploration of 2+2 articulated programs between the Baltimore County Public Schools and the Baltimore County Community Colleges originating from the work of DACUM panels on Pre-Press Imager/Assembler and Electronic Publishing. This activity is planned for Spring and Fall, 1990. And, finally, materials for the Horticulture Technical Committee are being printed.

Status of Recommendations from the 1989 Evaluation

Three recommendations were made in conjunction with the 1989 Project Evaluation. The first recommendation addressed the need to continue to reinforce the role and responsibilities of participating institutions in the Center's programs. To that end, the Project Director and the Project Coordinator conducted on-site visits to each of the 15 institutions involved in the DRC programs prior to the start of the 1989-1990 academic year to clarify institutional needs and expectations as well as DRC responses. Additionally, liaison activities were emphasized, the Advisory Committee focused on roles and responsibilities, and mid-year communications identified unmet needs and new requests for services to be provided during the balance of the project year.

The second recommendation addressed the refinement of the Phase III Instructional Development Training and Support process to provide further definition and clarification. Phase III has undergone a thorough refinement to define and clarify materials appropriate to different audiences requesting Phase III training. Participant evaluations conducted during the year have documented positive results.

The final recommendation addressed the need to seek the support of the Maryland Division of Vocational-Technical Education for continued funding. Despite delays in the reauthorization of federal legislation and changes of leadership in the Division, support for the Maryland DACUM Resource Center has continued through the provision of one-year level "transitional" funding, a request for an orientation to the Center for the new Assistant State Superintendent of the Division, and the development of linkages between the Center's planned activities and state initiatives.

Surveys

The results of two surveys were analyzed, a phase I/II Survey requesting participant's perceptions of the effectiveness of those two aspects of the Center's program, and a Phase III Survey requesting participant's perceptions of the effectiveness of that aspect of the Center's program.

Phase I/II Survey

The Phase I/II Survey was completed by 52% of the recipients. Within this population, 86% of the respondents completed Phase I, DACUM training; 46% completed Phase II, Curriculum training; and 21% completed Phase III, Instructional training. Additionally, all of the respondents (100%) facilitated DACUM activities and over half of the respondents, (54%), facilitated more than three DACUM activities.

Respondents found the orientation program effective overall (86%), with the highest assessments achieved on the overview (96%) and presentation (95%) of the DACUM process followed by the identification of interest among faculty and staff (91%). Assessments of discussions of the potential impact of the training on program development (81%) and the college (77%), as well as the discussion of institutional support (75%) were slightly lower.

Similarly, respondents found both the Phase I training, Chart Development (97%), and the Phase II training, Curriculum Planning Process (94%), effective overall. In Phase I, all respondents (100%) considered the presentation of DACUM principles, the development of coordination and facilitation skills for chart development, and on-site support and mentoring effective. Additionally, most respondents considered the preparation of the DACUM chart (95%) and implementation assistance (85%) effective.

In Phase II, Curriculum Planning Process, all respondents (100%) considered the presentation of CPP principles, the development of coordination skills, and the preparation of the curriculum plan effective. Additionally, most respondents considered the development of facilitation skills (93%), on-site support and mentoring (93%), and implementation assistance (79%) effective.

Accompanying comments on open ended questions suggested that most respondents perceived the impact of the orientation to DACUM at their institution positively, using phrases such as, "Good overview" and "...effective" or "...created enthusiasm". However, some additional comments also suggested that countervailing pressures existed, e.g., finances, support at key levels, college receptivity and campus involvement. And a few comments were negative in terms of the quality of the presentation.

Relative to Phase I training, most respondents indicated that the potential of the DACUM process at their institution was excellent, with comments such as "Thriving!" and "Great!" or "Excellent", although some comments reflected problems in building momentum and garnering institutional support. Most of the respondents who participated in the DACUM process felt that Phase I training had a substantial impact on their programs, and some individuals indicated that they found it very valuable. However, respondents also indicated that more administrative and institutional support is required as well a fiscal support, time and training.

Responses to Phase II training suggested that the potential for the Curriculum Design Process was quite strong on the campuses represented through comments such as "High" and "Very good" or "...it has great potential...", with several concerns about administrative, institutional and fiscal support. Again, the impact of Phase II training has been positive, with respondents making comments such as "Superb experience for me and my curriculum." Additional support required for the program includes such items as finances, time, faculty participation and leadership, clerical support and institutional support.

Recommendations for the enhancement of the DACUM training program include: increased skill development in the differentiation of duties and tasks for chart development; videos showing the process in action; more "hands-on" practice; more information relative to potential markets and building institutional support; training on panel management; and sessions on DACUM variations such as the one-day process.

In addition to continued encouragement and more observation of new facilitators, additional supports needed to realize the potential of the process across responding campuses include such items as time and results, money and human resources, and institutional commitment. However, when asked to what degree the organization supported the use of DRC training, responses ranged from "Fully..." to "Poorly" with most responses qualified by fiscal or staffing limitations.

Phase III Survey

The Phase III Survey on the Instructional Development Process was completed by 41 percent of the recipients. Within this population, 81% of the respondents participated in the orientation to Phase III and all of the participants (100%), without exception, found the orientation effective, including the provision of preliminary training material, the integration of DACUM information, and the application of learning theory to the Instructional Development Process.

Most of the respondents (88%) participated in training relative to academic program design and construction. All of the participants (100%) considered the development of program goals and objectives and curriculum maps, as well as the refinement of course sequence effective. Similarly, most of the participants found the development of techniques for program evaluation and revision (92%) and the description of student characteristics (85%) effective.

Slightly less than half of the respondents (44%) participated in academic course design and construction, and most of those who participated (91%) considered the program effective. Of those who did participate, all (100%) found the development of course goals and objectives, the construction of learning hierarchies, and the development of performance measures effective. Similarly, most of the participants considered the construction or refinement of course syllabi (86%) and the development of course evaluation techniques (71%) effective.

Slightly more than half of the respondents (56%) participated in training program design, construction, and implementation, and most of those who participated (96%) found the program effective. Again, all of the participants (100%) considered the construction of learning hierarchies, the development of training goals and objectives and criterion-referenced measures, as well as the evaluation and revision of instructional units effective. Likewise, most of the participants (89%) considered the description of trainee characteristics and the development of teaching/learning styles and techniques effective.

Finally, most respondents reported a high (61%) to moderate (37%) interest in having the DACUM Resource Center continue to provide DACUM training. More specifically, all respondents (100%) indicated an interest in Phase II, Curriculum Development, training and Phase III, Instructional Development, training and most of the respondents (92%) indicated an interest in Phase I, DACUM Chart Development, training.

Open ended questions accompanying the Phase III Survey indicated that interest and participation in Instructional Development Training was prompted primarily by participation in Phases I and II of the DACUM process with some suggestions of support or encouragement from the administration or the institution.

All respondents felt that Phase III training assisted in the construction of instructional programs that measurably increased student learning with comments such as " Very effectively, by exploring all aspects of a chosen topic, course designers are better able to meet [the] needs of students." However, many respondents were in various stages of the Phase III implementation process.

The strongest features of the training included the interesting and dynamic presentation of material; breaking into small groups and developing programs/courses; MAPS; the hierarchy; and group size, participation and interactivity. The weakest features of the training included the introduction; insufficient background material and detail; and time and location. Improvements suggested included: provide preliminary information for participants; ensure current knowledge of Phases I and II; conduct a full group orientation session; provide more interesting background information; and train for shorter periods of time over more day at a new location.

Generally, respondents felt that Instructional Development Training had affected them and their institutions. Some were using it in their curricula and made comments such as " ...I focus more closely now on individual learning steps and skills. I attempt to evaluate more thoroughly and facilitate in smaller, more specific learning steps." Other respondents were planning to use the process and could make no direct comments at the time. Suggestions for improved impact included addressing non-credit programs and training more people, especially in various regions of the state.

Interviews

Initially, the DACUM Resource Center staff was asked for its thoughts on the development, achievements, and impact of the Center with a focus on the implications for the future. The DRC staff characterized the growth of the Center as "deliberate" and "planful" with the five-year plan "implemented almost to a 'T'". They found their collective risk-taking and supportive behaviors to be key, especially about three years into the project when implementation activity increased at a rapid rate. As a group, the staff felt most successful in the exportation of their program. They placed their confidence in their knowledge of, the structure of, and the utility of their products. On the other hand, they felt least successful with the publication and institutionalization of their program, a condition exacerbated by time constraints and divided attention. In fact the primary lessons learned by the staff relative to research and development during the project addressed the deployment of resources, especially staff time; the importance of development, i.e., testing and refinement; and the difficulty in locating support for continuing research and development.

The major achievement of the DRC staff focused on the fact that almost half of the programs targeted are now being presented at the state level with DACUM charts. To produce that accomplishment, the staff had to promote the systematic nature of the process; enable others to develop and refine programs and services; encourage business and industry and government agencies to influence one another on curriculum matters; and increase state-wide awareness of the potential of competency-based education. Most satisfying to the staff was the development of its three-phase, well integrated package coupled with the flexibility and instructional connectedness of the program. Second, they valued the strength, empowerment and spirit of the interdisciplinary team; the credibility established for the Center; and the connections made with other community colleges in the state. Aspects of the program requiring further refinement include: Phase III; Phase II articulated programs (2+2 and 2+2+2); TRU, Tech Span, and Learning Outcomes Assessment. The most promising of these programs include

Tech Span, TRU, and Phase III in addition to activities such as continuing model elaboration, the refinement of linkages to the assessment of prior learning, and the exportation of the program to business and industry for training and direct service. However, a major concern relative to these activities is funding.

The perceived impact of the project has been greatest in terms of its ability to relate to the program approval process at the state level, to reinforce interconnectedness among the community colleges and increase connections with business and industry. With funding for increased institutional participation in a cooperative environment, computerization and the development of videos and videodiscs, and the development of additional applications with linkages to economic development, the impact of the Center's programs could be increased further.

To ensure the long term impact of DRC, national connections within and beyond education will be established, publications and collegiate participation will be increased, a business plan will be developed, and funds will be sought from government agencies, corporations, and private foundations. The five most promising future initiatives which the Resource Center might undertake include: customized training, secondary applications, Tech Scan, institutionalized economic development connections, and the formalization and the stabilization of the Center through continued funding.

This inquiry was followed with the generation of a series of conditions which were expected to exemplify the characteristics of institutions which have been highly successful in implementing and institutionalizing DACUM programs. Twelve conditions were generated by the staff as follows:

- * Linkages have developed between DACUM programs and institutional processes, i.e., curriculum development, revision, and approval.
- * Connections have been made with business and industry.
- * Initial and on-going support from high in the organization has been provided, resulting in faster and more effective integration into the organizational structure.
- * Adequate financial support has been made available.
- * DACUM assignments have been incorporated into the assignments and job descriptions of key personnel with accompanying release time.
- * Involvement of faculty and department chairs has been coordinated effectively.
- * Selection of key individuals involved in the process, i.e., faculty and administration, has been based upon the strength of their interest, expertise, and political power, as well as their adaptability.
- * College access to panel members has been expansive.
- * External incentives, e.g., business and industry, have encouraged the use of the process.
- * Benefits of the process have been perceived by the institution.
- * Academic programs with strong career orientations and high market demand have been selected for program participation, distinguishing among the tasks of new program development, program updates, and program mandates.

- Effective organizational support has been provided from the DACUM Resource Center for program development and implementation, contact, accommodation, etc.

Following the development of the listing of anticipated conditions by the Center staff, representatives of four participating colleges were interviewed. On the basis of the interviews conducted, enabling conditions described by these institutions included:

- Wanted professional development for a particular area that was systematic, specific, timely, marketable and verifiable;
- Needed to review programs;
- Needed information directly from industry for new technologies;
- Selected the DACUM process for particular applications based on "appropriateness" and utility;
- Experienced success with Phases I and II;
- Tailored, adapted and used the process and its variations such as TRU for exercises such as program verification;
- Involved faculty, including arts and science faculty, with favorable response and garnered their support, trust, and ownership;
- Integrated DACUM into program assessment and development through the curriculum planning process and a systematic approach to curriculum development;
- Garnered support and commitment from the college administration, the leadership, and the institution including rhetorical support as well as fiscal support;
- Located the program in an area of the college which could provide resources, e.g., secretarial support and linkages to business and industry;
- Garnered support from business and industry including specific requests and funding to support the DACUM process;
- Selected appropriate numbers of eager, interested and committed panelists who were cooperative, process-oriented and became enthusiastic about the process;

- Selected facilitators with consensus building skills - people who were "wordsmithers";

- Demonstrated ownership of the DACUM process through the establishment of positional responsibility, college advisory committees and publications on the process, institutional efforts to expand and improve the process, conducting train-the-trainer workshops, etc.;

- Recognized and responded affirmatively to support for curricula developed using DACUM at the state level and in business and industry;

Several ancillary comments made through the interviews relative to the process were also noted:

- Preparation for the implementation of a DACUM panel is critical to its success, including the preparation of the job description, the selection of the facilitator, and the selection and orientation of the panelists;

- New areas respond well to the DACUM process as do program revisions and evaluations;

- Curricula developed using the DACUM process meet specific local needs, but may not meet the standardized criteria of accrediting agencies;

- With increasing familiarity with the process, DACUM tends to be taken into more esoteric areas;

- Use resulted in a "new vision", creating credible programs to meet local needs;

- Phase III requires institutional tailoring;

- Technical areas are more DACUM oriented and seem to lend themselves to DACUM; and

- The DRC might promote outreach through the development of Regional DACUM Training Centers in interested community colleges across the state.

IV. DISCUSSION

Previous evaluations completed for the DACUM Resource Center have provided an outline of the quality of the Center's emerging programs; the present evaluation affirms the quality of the Center's programs and services and suggests potential areas for further development in the future.

The 1987-1988 evaluation, conducted at the mid-point of the project, described a high degree of participant satisfaction with chart and curriculum development procedures and results, as well as their use. Many respondents reported that DACUM was likely to "bring new programs to campus...improve the quality of programs...improve the courses taught ...improve the competency and effectiveness of teaching...[enhance] the college image...[help in] marketing the programs...and help prepare future employees" (Crews and Rajasekhara, ii-iv).

Participants made a variety of suggestions in an effort to support the continued development of, refinement of and support for the Center's programs and services. They suggested improvement in Phase II activity, curriculum development, and Phase III activity, instructional development, as well as increased support for institutions to assess their needs, develop systematic procedures and maintain consistently high standards for chart development.

The 1988-1989 evaluation focused on the three phases of DACUM training. Virtually all facilitator trainees reported high levels of satisfaction with the orientation provided (94%), preliminary support and on-site support and evaluation from the Center (97%), and the effectiveness of the training process in enabling them to become independent facilitators (94%). Respondents requested additional supervised facilitation experiences in order to increase confidence levels (Rajasekhara, iii, 20).

Relative to Phase III, all (100%) of the respondents reported satisfaction with preliminary materials, overviews, construction of performance objectives, sequencing of objectives, and the presentation of materials. Many (80%) of the respondents reported satisfaction with the review of DACUM charts, construction of performance measures, selection of instructional strategies, development of materials, and validation of effectiveness. And most (75%) reported satisfaction with the length of the Phase III training program. Respondents requested increased institutional adaptability and the reallocation of training time to provide for campus-based experimentation with the process between training sessions (Rajasekhara, iii-iv, 24).

During the current year, 1990, an impact study on the work of the Center was also completed. This study focused on the extent to which the DACUM process and its outcomes had been implemented and incorporated into curriculum planning and development within the participating Maryland community colleges. The results of the study indicate that administrators perceive the DACUM process as having been incorporated into plans for program development and revision with some evidence of influence on the institution's program approval process. They also reported increased business and industry support in the form of financing, the donation of resources, and the hiring of graduates and increased administrative support for the process. At that point, more than 70 programs and courses had been developed as a result of the project (Ferenz, 43-47).

The final Project Evaluation confirms and elaborates upon many of the findings of previous evaluations in terms of overall project achievements, development and dissemination. Inquiries into overall project achievement revealed that the project has been highly productive and extremely satisfying. All of Maryland's Community Colleges participated in the DACUM training programs provided through the project. Phase I training, Chart Development, was completed by each College; Phase II training, Curriculum Planning, was completed by most of the Colleges, and Phase III training, Instructional Development, was completed by almost half of the Colleges.

As training progressed, efforts to provide technical assistance increased. At the start of the year, each participating institution was visited by Center staff to clarify institutional needs and expectations as well as potential responses. During the year, liaison activities were promoted and needs and expectations addressed. A mid-year identification of needs and requests provided direction for both training and technical assistance during the balance of the project year.

These activities, training and technical assistance, produced and maintained extremely high levels of participant satisfaction with the programs and services provided by the DACUM Resource Center. This year, virtually all of the participants in the Center's orientation and training programs rated them 'very effective'. Areas of particular strength included both process and content. The identification of faculty interest, the development of facilitation and coordination skills, and the provision of on-site support and mentoring represented strengths in the process of training and technical assistance. Similarly, the presentation of DACUM principles and processes, the development of curriculum maps and plans as well as course goals and learning hierarchies, and the design of measures of performance and evaluation represented strengths in the content of training and technical assistance.

Content suggested for future development included descriptions of student and trainee characteristics, especially learning styles, the design of course syllabi and evaluation procedures, and instruction in DACUM variations. Additionally, participants called for more training, the use of videos, and more "hands-on" panel management. However, of greater importance is the suggestion that the staff of the Center refine discussions of the impact of the process on program development and the institution, emphasizing techniques to identify potential markets, build leadership and garner administrative, institutional, and fiscal support. While the quality of participant selection and preparation are fundamental to the success of the program itself, institutional ownership is crucial and develops with success, utility, and adaptability. Therefore, the level of need for and success with the program, the ability to own and support, adapt and integrate the program to the institution, the level of institutional ownership and support for the program, and recognition from external groups such as the state and business and industry all contribute to the successful institutionalization of the DACUM process.

Given the levels of activity and satisfaction demonstrated, together the community colleges produced 80 Phase I charts and 42 Phase II curriculum plans. As the project concludes, many of these curricula have proceeded through the curriculum approval process resulting in a noticeable impact at the state level according to members of the DRC Advisory Committee. With continued training and technical assistance, this initial impact can be sustained and increased in the future.

In addition to the activities undertaken at the postsecondary level, two Technical Committees were conducted at the secondary level in conjunction with the Maryland Division of Vocational-Technical Education. These Committees developed model programs in horticulture and printing using DACUM and a series of DACUM modifications including the TechScan process and the Task Analysis Process, TAP. Continuing into the future, the Center is exploring the development of a 2+2 articulated program in each area. Taken together, the training activity of the Center with schools and colleges suggests that the project achieved significant impact on the curriculum development process throughout the state.

Beyond the productivity evident through the training and consultation provided by the Center and the curricula designed, the staff maintained an extremely high level of development activity throughout the project. Over the years, the Center invested heavily in the modification, refinement and reconceptualization of the three phases of the Center's DACUM process: chart development, curriculum planning, and instructional development. Additionally, training programs for facilitators and coordinators were refined to reflect program developments and increase training effectiveness. The results of these refinements, like the programs and services provided, are also reflected in the maintenance of extremely high levels of participant satisfaction with the training provided by the staff of the DACUM Resource Center.

However, of equal or greater importance is the significance of the three-phase design of the DACUM Resource Center, a singular development in the field as reflected in the review of the literature. Maryland's Center appears to created a very important innovation in the reconceptualization of the DACUM process, reintegrating chart development with curriculum planning and instructional development to support institutionalization and maximize student learning. With current concerns for institutional effectiveness, accountability, and productivity in education, this development should prove extremely important in the future.

As productivity and satisfaction have increased and development has progressed, the importance of dissemination has become more apparent. Consequently, the Center established a networking initiative which produced liaisons, affiliations, and agreements with several local, regional, and national curriculum organizations. Additionally, the staff of the DACUM Resource Center has made numerous presentations to state and county boards and departments as well as educational institutions, businesses, and industries. And, finally, the Center has undertaken special initiatives such as the initiation of a facilitator's exchange. These initiatives are important to the future of the Center and require continuation. However, the importance of publications cannot be overemphasized, especially as the Center connects its DACUM model with the need for increased institutional effectiveness and student learning as well as closer linkages between educational and economic development.

Finally, a word about the DACUM Resource Center staff - a group known for its collective risk-taking and supportive behaviors. They learned a great deal about research and development as well as the deployment of limited resources during the course of the project. They found confidence in their knowledge of their program, satisfaction in the quality and utility of their product, and success in their ability to export the program. Moreover, they have continued to generate innovations and applications of the DACUM process for the future. Given previous observations and comments, many of the ideas presented show promise, including the expansion of the TRU and the TechScan processes as well as applications to articulation, outcomes assessment, assessment of prior experience, and customized training for business, industry, and government. They believe that the DACUM process shows great promise for the future, a belief which is certainly substantiated by the performance of the Center during the course of the project under review.

V. CONCLUSIONS AND RECOMMENDATIONS

From the evidence gathered, by all accounts, the Maryland DACUM Resource Center project funded by the Division of Vocational-Technical Education and implemented at Dundalk Community College has been extremely successful in developing, promoting, and disseminating the DACUM model throughout the state. The quality of the Center's training programs and technical services, as well as the Center's model and materials is outstanding as is evident through their use and growing impact as well as the satisfaction of the users and their demand for continued training.

While current programs can always be refined, the data collected through the evaluation suggest that the major issues confronting the Center relate less to continuing program refinement than to continuing program support, elaboration and dissemination. With a quality product, cooperative relationships, and critical linkages established, the Center must now focus these resources on the expansion of service delivery, the development of direct applications to selected educational and economic issues, and the production of publications describing and promoting the Center, its model, and its programs and services.

On that basis, the following recommendations are designed to support expanded service delivery, selected application development, and publication production:

1. Over the next year, a transitional year, the Maryland DACUM Resource Center should design a five year plan focusing on the continued refinement of the design and funding, the programs and services, and the development and publications of the Center.

2. As a part of the five year plan, the Center should consider the potential of promoting an outreach network for collaborative program development, materials production and dissemination, and training and technical program assistance across the state.

3. Within the area of program development, the DACUM Resource Center should consider the design of specific techniques focused on the institutionalization of the DACUM process and the design of linkages with significant educational and economic issues such as program articulation, the assessment of institutional effectiveness and student learning, and the development of markets for customized training.

4. Within the area of materials production and dissemination, the DACUM Resource Center should consider the continued refinement of training programs relating to DACUM and its variations and the development of a series of training videos designed to augment the acquisition of critical skills and concepts.

5. Working collaboratively with the state Departments of Education and Economic and Employment Development over the next year, the Maryland DACUM Resource Center should produce multiple-year projects designed to support the continued development of Departmental curricular goals and to advance the economic impact of manpower training and development.

With an impressive record of achievement, it is clear that the Maryland DACUM Resource Center merits the continued support of the state and that the programs and services of the Center require continued elaboration, application, and dissemination. While the results of the initial project have been impressive to date, the true impact of the initiatives taken by the Center will only be realized over the next five years as increasing numbers of programs developed with the DACUM process achieve state approval both at the secondary and post-secondary levels. In order to create a self-sustaining system of improvement, ensuring institutional and economic effectiveness as well as student learning, continued public funding is essential.

REFERENCES

Adams, Robert E. "Building Competency Models: One Approach to Occupational Analysis." Canadian Vocational Journal 10.3 (1974): 36-41.

Adams, R. E. DACUM Approach to Curriculum and Evaluation in Occupational Training at Nova Scotia NewStart, Inc. Yarmouth, Nova Scotia: 1975.

_______________. A Guide to the DACUM Process at El Paso Community College. El Paso: El Paso Community College, 1984.

Anderson, Tony and Neil Jones. Research Workshops in TAFE. Australia: TAFE National Center for Research and Development, 1986.

Anderson, Tony and Neil Jones. TAFE Curriculum Research: A Review of Group Process Methods. Australia: TAFE National Center for Research and Development, 1986.

Boyatzis, Richard E. The Competent Manager: A Model for Effective Performance. New York: John Wiley and Sons, 1982.

Christner, Chris. "Innovative Teaching Aids." Career Training 5.2 (1988): 9-12.

Coffin, Lawrence and Jack Sands. "In Step with Holland College: A Performance Based Professional Development Program." Adult Training. 2.4 (1977): 13-15.

Crews, L. Denton and Koosappa Rajasekhara. Maryland DACUM Resource Center Project Evaluation Report. Dundalk, Maryland: Dundalk Community College, 1988.

Day, Philip R., Jr. "Developing Customized Training for Steel and Other Heavy Industries." New Directions for Community Colleges 12.4 (1984): 41-54.

Dickens, Mary Ellen. "Practitioners Formulate Competencies for Developmental Educators." Journal of Developmental and Remedial Education. 4.1 (1980) 16-17.

Doty, Charles R. et. al. Translation of a Taxonomy into a Curriculum Guide New Jersey: US, 1983.

Dunn, Raymond L. and John T. Greb, Jr. Miami-Dade Community College Urban Transfer Opportunity Program. Miami: Miami-Dade Community College, North Campus, 1984.

Everett, Donna R. "Competencies for Information Systems Workers." Doctoral dissertation University of Houston, 1988.

Faber, Dennis M. "DACUM: A Practical Response to Corporate Training Needs." Paper produced for the Maryland DACUM Resource Center at Dundalk Community College, 1990.

Faber, Dennis and Penny Alexander-Jung. Curriculum Planning Process. Dundalk: Maryland DACUM Resource Center at Dundalk Community College, 1989.

Fangman, Ed and John Low. "Information for Orientation - Phase III" Internal memorandum for the Maryland DACUM Resource Center at Dundalk Community College, 1989.

Ferenz, Susan S. "DACUM: A Study of the Implementation of the DACUM Process in Maryland's Community College System." Masters Thesis. Vocational Studies Program of the University of Delaware, 1990.

Finch, Curtis R. and John R. Crunkilton "Review and Critique of Strategies for Determining Career Education Curriculum and Content" Paper presented April 1979. San Francisco: American Educational Research Association, 1979.

Flanagan, J. C. "The Critical Incident Technique." Psychological Bulletin. 51.4 (1954): 327-358.

Harrington, Lois G. and David J. Kalamas, compilers. Achieving Professional Excellence: Proceedings of a National Conference on Performance-Based Approaches to Training. 8-10 October 1985. Little Rock, Arkansas: National Center for Research in Vocational EDucation.

Harris, Jack. "A Synopsis of Keeping Occupational Education Current, Formation and Evaluation - DACUM." Paper presented 4 November 1982 Toledo, Ohio: The American Technical Education Association Great Lakes Regional Conference, 1982.

Hesse, Cindy G. and Wim J. Nijhof. "Cost Effectiveness of Two Methods of Job Analysis." Paper presented 1-5 December 1988 St. Louis: American Vocational Association, 1988.

Klingman, Peter D. and W. Aubrey Gardner. "Modifications in the DACUM Process of Curriculum Development at Daytona Beach Community College." Daytona:DBCC, 1982.

Leslie, William and Adam Dimitrick. "A System Model for Operating an Adult Training Program." Adult Training 2.4 (1977): 20-25.

Middleton, M. A. "Task Analysis and Validation Procedures of DACUM". Victoria: British Columbia Department of Education, 1981.

Mitchell, Barbara J. Introduction to DACUM. DACUM 1. Victoria: British Columbia Department of Education, 1983.

Mitchell, Barbara J. From Objectives to Instruction. DACUM 4. Victoria: British Columbia Department of Education, 1983.

Norton, Mark. "Indicators of Institutional Effectiveness" Assessment Update 2.1 (1990): 7,9.

Norton, Robert E. Administrator Competency Study: A National Identification and Verification of the Competencies Important to Secondary and Postsecondary Administrators of Vocational and Technical Education. Columbus: National Center for Research in Vocational Education, 1987.

Norton, Robert E. DACUM Handbook, Leadership Training Series #67. Columbus: National Center for Research in Vocational Education at Ohio State University, 1985.

Rajasekhara, Koosappa. Maryland DACUM Resource Center Project Evaluation Report. Dundalk, Maryland: Dundalk Community College, 1989.

Roth, Gene L. et. al. "Getting Ready for Micros." VocEd 59.3 (1984): 30-31.

Samuelson, Judith A. et. al. Developing a Curriculum in Response to Change Options and Expanded Educational Services for Adults. Columbus: Ohio State University National Center for Vocational Research and Development, 1987.

Scribner, Jean. "From Industry to Assignment:Developing a Curriculum through Industry Liaison". Paper presented May 28-31, 1984. Vancouver, British Columbia: Joint Conference of the Canadian Vocational Association and the Association of Canadian Community Colleges, 1984.

Shears, Arthur. "Identification and Presentation of the Component Functions of Training Technology." Programmed Learning and Educational Technology 25.1 (1988): 74-81.

Shears, Arthur E. "Occupational Analysis and Training." Journal of European Industrial Training 9.1 (1985): 23-27.

Sinnett, William E. The Application of DACUM in Retraining and Post Secondary Curriculum Development, Second Edition. Toronto: Humber College of Applied Arts and Technology, 1974.

Smith, Christopher. Developing Effective In-Service Training Programs. Madison: Wisconsin University, 1984.

Tesolowski, Dennis G. and Gene L. Roth. "Identification and Verification of Microcomputer Competencies in Vocational Education." Journal of Vocational Research 3.1 (1988): 95-116.

Thompson, J. Individualized Systems of Instruction in TAFE Colleges. Australia: TAFE National Center for Research and Development, 1985.

Thompson, Peter and Jan Murphy. Transferable Skills in Technical and Further Education. Australia:TAFE National Center, 1987.

APPENDIX A: Evaluation Design
Evaluation Protocols

DACUM LITERATURE REVIEW AND EVALUATION

Focus	Type	Methodology	Resources	Results	Schedule
Phase III Follow-up	Formative	Survey	Trainers, Facilitators, and Participants	Quantitative and Qualitative	Design-Oct Dist-Nov Analy-Dec
DRC: '89 recommendations	Formative	Documentation	DACUM Staff and DACUM Board	Qualitative	Design-Oct Dist-Nov
DRC: DVTE Technical Support	Formative	Documentation	DACUM Staff and Surveys	Quantitative	Design-Oct Impl-Nov Analy-Dec
DRC: Development	Summative	Documentation and Interview	DACUM Staff and DACUM Board	Quantitative and Qualitative	Design-Oct Dist-Nov Int-Dec
Overall Project Achievements	Summative	Documentation and Interview	DACUM Staff and DACUM Board	Quantitative and Qualitative	Design-Oct Dist-Nov Int-Dec
Overall Project Impact	Summative	Survey	Randomly Selected Participants	Quantitative and Qualitative	Design-Oct DIST-Nov Analy-Dec
		Interview	DACUM Staff and DACUM Board	Qualitative	Design-Oct Impl-Dec
		Case Histories	DACUM Staff and Selected Colleges	Qualitative	Design-Oct Impl-Nov Analy-Dec

DACUM RESOURCE CENTER

Project Evaluation

The purpose of this survey is to assess the overall effectiveness and impact of the project activities provided by the DACUM Resource Center. Your responses will assist us in revising and enhancing the program and in planning future activities.

Please complete the items which follow as appropriate and return it by January 31, 1989 to the Office of Institutional Research and Grants at Dundalk Community College in Dundalk, Maryland 21222.

I. Background Information

A. Indicate the year(s) and phase(s) in which you have been trained by checking the appropriate space(s):

Phase I: DACUM ___'85-'86 ___'86-'87 ___'87-'88 ___'88-'89 ___'89-'90

Phase II: Curriculum ___'86-'87 ___'87-'88 ___'88-'89 ___'89-'90

Phase III: Instruction ___'87-'88 ___'88-'89 ___'89-'90

B. How many DACUM activities have you facilitated?_______________

II. Orientation

The DACUM Resource Center's on-campus orientation provides a forum for the discussion of the DACUM process and its potential impact on the college. Assess the effectiveness of this orientation program at your campus/organization by circling the appropriate number for each item:

	Highly Effective	Effective	Ineffective	Extremely Ineffective
Presentation of the DACUM process	3	2	1	0
Overview of the DACUM training program	3	2	1	0
Discussion of the potential impact of training on the college	3	2	1	0
Discussion of the potential impact of training on program development	3	2	1	0
Identification of interest among faculty and staff	3	2	1	0
Discussion of institutional support	3	2	1	0

In your opinion, what was the impact of the campus orientation program at your college?

III. **Phase I Training: Chart Development** (Please complete only if you were a participant.)

Phase I Training ensures the identification and mastery of DACUM principles as they relate to the development of the DACUM chart. Assess the effectiveness of this training by circling the appropriate number for each item:

	Highly Effective	Effective	Ineffective	Extremely Ineffective
Presentation of DACUM principles	3	2	1	0
Development of skills and competencies to coordinate the chart development process	3	2	1	0
Development of skills and competencies to facilitate the chart development process	3	2	1	0
On-site support and mentoring for the chart development process	3	2	1	0
Preparation of the DACUM Chart	3	2	1	0
Assistance in implementing this process within your organization	3	2	1	0

How would you describe the potential of the DACUM process at your institution?

What has been the impact of Phase I Training on you and your institution?

What additional support is required to realize the full potential of the process at your institution?

IV. Phase II Training: Curriculum Planning Process (Please complete only if you were a participant)

Phase II Training prepares facilitators to design a curriculum plan from a DACUM chart. Assess the effectiveness of this program by circling the appropriate number for each item:

	Highly Effective	Effective	Ineffective	Extremely Ineffective
Presentation of CPP principles	3	2	1	0
Development of skills and competencies to coordinate the CPP development process	3	2	1	0
Development of skills and competencies to facilitate the CPP development process	3	2	1	0
On-site support and mentoring for the CPP development process	3	2	1	0
Preparation of the Curriculum Plan	3	2	1	0
Assistance in implementing this process within your organization	3	2	1	0

How would you describe the potential of the Curriculum Design process at your institution?

What has been the impact of Phase II Training on you and your institution?

What additional support is required to realize the full potential of the process at your institution?

VI. How can the DACUM Training program be enhanced or improved?

VII. What additional support is required to realize the potential of the process at your institution?

VIII. To what degree has your organization supported the use of these processes?

DACUM RESOURCE CENTER

Phase III Instructional Development Process

Program Evaluation

The purpose of this survey is to assess your perceptions of the DACUM Phase III Instructional Development Training in which you recently participated. Your responses will help us evaluate the effectiveness and the impact of the program, to develop refinements in the training, and to plan future programs and activities.

Please complete the survey, sharing your assessment as well as your comments and suggestions, and return it to the Office of Institutional Research and Grants at Dundalk Community College, Dundalk, Maryland 21222 by February 15, 1990.

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1. What prompted your interest and participation in Phase III Instructional Development Training?

2. Phase III Instructional Development Training was constructed to assist program and course designers in constructing systematic instructional programs that measurably increase student learning. From your experience with the training, how effectively does the training meet that overall goal?

3. For each of the activities in which you participated, indicate your level of satisfaction with the Phase III Training in each of the following areas by circling the appropriate number for each item:

—	Very Effective	Effective	Ineffective	No Basis to Judge
Orientation to Phase III:				
__Participated __Did Not Participate				
Provision of preliminary training materials	3	2	1	0
Integration of DACUM Information	3	2	1	0
Application of learning theory to the Instructional Developmental Process.	3	2	1	0
Academic Program Design and Construction:				
__Participated __Did Not Participate				
Development of Program Goals and Objectives	3	2	1	0
Development of Curriculum Maps	3	2	1	0
Description of Student Characteristics	3	2	1	0
Refinement of Course Sequence (Hierarchy)	3	2	1	0
Development of Techniques for Program Evaluation and Revision	3	2	1	0
Academic Course Design and Construction:				
__Participated __Did Not Participate				
Development of Course Goals and Objectives	3	2	1	0
Construction of Learning Hierarchies	3	2	1	0
Development of Performance Measures	3	2	1	0
Construction or Refinement of Course Syllabi	3	2	1	0
Development of Course Evaluation Techniques	3	2	1	0

Training-Program Design, Construction and Implementation:

__Participated __Did Not Participate

	Very Effective	Effective	Ineffective	No Basis to Judge
Construction of Learning Hierarchies	3	2	1	0
Development of Training Goals and Objectives	3	2	1	0
Development of Criterion-Referenced Measures	3	2	1	0
Description of Trainee Characteristics	3	2	1	0
Development of Teaching/Learning Styles and Techniques	3	2	1	0
Evaluation and Revision of Instructional Units	3	2	1	0

4. In your opinion, what was the strongest feature of the training? Why?

What was the weakest feature of the training? Why?

5. How might Phase III Instructional Development Training be improved to increase overall effectiveness?

6. In your opinion, to what degree and in what way(s) will the Instructional Development training affect the curriculum development process on your campus?

7. How could the overall impact of Phase III Training on your curriculum be improved?

8. Indicate your interest in having the DACUM Resource Center continue to provide DACUM activities by circling the appropriate number for each item:

	High Interest	Moderate Interest	Low Interest
Phase I: DACUM Chart Development	3	2	1
Phase II: Curriculum Development	3	2	1
Phase III: Instructional Development	3	2	1
Other (Please Describe) ______________	3	2	1

DACUM RESOURCE CENTER

Development, Achievements. and Impact

Interview Protocol

Having documented the activity of the Center, we present the following questions to you as members of the DACUM staff to elicit your thoughts on the development, achievements, and impact of the Center with a focus on the implications for the future.

I. Development

A. Over the past 5 years, as a staff, you have made a commitment to the development of the Resource Center, its programs and services. How would you characterize the growth of the Center during this period?

B. With what development activity were you most successful? Why?
With what development activity were you least successful? Why?

C. Research and development were major activities within the Center. As you think back on these development initiatives, what have you learned about research and development that might be useful in the continuing growth of the Center?

II. Achievements

A. What major achievements has the Center realized relative to curriculum development and refinement at the secondary and post secondary levels?

B. With what aspects of the DACUM Resource Center program are you most Satisfied? Why?

What aspects of the program require further refinement? What type of refinement?

C. Based upon the achievements f the DACUM Resource Center to date and the lessons learned over the past five years, what aspects of the program seem most promising for the future? What would be required to realize further achievements in these areas?

III. Impact

A. Beyond the specific achievements previously cited, what impact has the Center had on curriculum development and refinement at the secondary and post secondary levels?

B. How could the impact of the DACUM Resource Center's programs and services be enhanced in the areas of curriculum, instruction, corporate training, and DVTE?

C. What measures will you take to ensure the long term impact of the DACUM Resource Center at the secondary and post secondary levels?

IV. Future

A. What are the five most promising initiatives the Resource Center might undertake in the future?

DACUM RESOURCE CENTER

CASE HISTORY INTERVIEW PROTOCOL

CONDITIONS OF SUCCESS

The following conditions are expected to exemplify the characteristics of institutions which have been highly successful in implementing and institutionalizing DACUM programs:

- Linkages have been developed between DACUM programs and institutional processes, i.e., curriculum development, revision, and approval.
- Connections have been made with business and industry.
- Initial and on-going support from high in the organization has been provided, resulting in faster and more effective integration into the organizational structure.
- Adequate financial support has been made available.
- DACUM assignments have been incorporated into the assignments and job descriptions of key personnel with accompanying release time.
- Involvement of faculty and department chairs has been coordinated effectively.
- Selection of key individuals involved in the process, i.e., faculty and administration, has been based upon the strength of their interest, expertise, and political power, as well as their adaptability.
- College access to panel members has been expansive.
- External incentives, e.g., business and industry, have encouraged the use of the process.
- Benefits of the process have been perceived by the institution.
- Academic programs with strong career orientations and high market demand have been selected for program participation, distinguishing among the tasks of new program development, program updates, and program mandates.
- Effective organizational support has been provided from the DACUM Resource Center for program development and implementation, contact, accommodation, etc.

DACUM RESOURCE CENTER

Program Evaluation

Case History Protocol

Institution: Institutional Representative:

I. **Background Information**

Founding Date:

Organizational History:

Describe the history of the institution in terms of major developments in the organization, e.g., community served, college mission, changes in leadership, implementation of major initiatives, and resolution of major issues on campus.

Student Population:________FTE; ______Full time and ________Part Time

Describe the student population in terms of salient characteristics such as age, gender, race, economic background, religion, etc.

Programs and Services:

Describe the college curriculum including the total number of academic programs and program designations, transfer or career, and the proportion of full time and part time faculty in each area.

Experience with Program Development and Evaluation prior to DACUM training: .

Describe standard practice as it relates to program development and evaluation from the generation of the program concept to implementation, including both formal and informal procedures for instructional development and the role of the faculty throughout the process.

Describe how your organization used the various levels of the DACUM process, the curricula on which they were used, and the outcomes which were achieved.

II. Critical Incident Interview

Describe the program or course for which the DACUM process was most effective.
(Probes request specificity, clarification, and examples at each of three levels of training, if applicable.)

Is there a second program or course for which the DACUM process was extremely effective?
(Probes request specificity, clarification, and examples of each of the three levels of training, if applicable.)

And, finally, is there another program or course for which the DACUM training was most beneficial?
(Probes request specificity, clarification, and examples of each of the three levels of training, if applicable.)

Describe a program or course for which the DACUM process was least effective.

> (Probes request specificity, clarification, and examples at each of the three levels of training, if applicable.)

Now describe a second program of course for which the DACUM process seemed ineffective.

> (Probes request specificity, clarification, and examples at each of the three level of training, if applicable.)

And, finally, describe a third program or course for which the DACUM process seemed ineffective.

> (Probes request specificity, clarification, and examples at each of the three levels of training, if applicable.)

DACUM Resource Center

Status of Center Development
and
Overall Project Achievements

Please indicate the extent to which the DACUM Resource Center has evolved over the duration of the project in each area listed:

I. Research, Design, and Dissemination

A. DACUM Chart Development

B. Curriculum development based upon DACUM charts

C. Instructional development for trainees in DACUM process

D. On-site training of facilitators/coordinators

II. Networking

A. A catalog listing all Maryland DACUM charts prepared and disseminated.

B. Active liaison maintained with other curriculum networks both within and beyond Maryland.

C. Linkages established and maintained with local groups such as: Local Advisory Committees, Directors of Vocational Education, Deans/Directors of Occupational Education.

III. Technical Assistance for Participating Institutions

A. Training for college personnel, staff development and in-service training to college personnel as requested.

B. Consultation services provided to assist DACUM personnel upon request.

IV. Please provide a listing of all participating community colleges and the levels of training provided to each.

DACUM RESOURCE CENTER

Status of DVTE Technical Support

Please document the activity which has occurred within each of the following four major categories as stipulated for the 1989-1990 Project:

1. Host Technical Committees and conduct a Tech Scan Process.

2. Facilitate DACUM or TAP Process for six occupational areas.

3. Facilitate Competency Profile Development Panel (COP) in six occupational areas.

4. Print Curriculum Packages

DACUM RESOURCE CENTER

Project Evaluation

STATUS OF FY'89 RECOMMENDATIONS

Please document initiatives taken to address the three recommendations resulting from the FY'89 Project Evaluation:

1. Continue to reinforce the role and responsibilities of participating institutions in the DACUM Resource Center programs.

2. Refine the Phase III, Instructional Development Training and Support process, providing further definition and clarification.

3. Seek support of the Maryland Division of Vocational-Technical Education for continued funding beyond the five year grant period.

APPENDIX B: Documentary Inquiry Data

DACUM RESOURCE CENTER

Status of Center Development
and
Overall Project Achievements

Please indicate the extent to which the DACUM Resource Center has evolved over the duration of the project in each area listed:

I. Research, Design, and Dissemination

A. DACUM Chart Development

As a result of deliberate efforts in research and development, of practice and application in a variety of job analysis situations, and of modifying the process to accommodate users needs, the DRC has developed a variety of improvements, extensions and modifications of the process. These have included a more refined approach to task statement development, the addition of lists of knowledge and skills, tools and equipment and traits and attitudes to the process, the development and refinement of a one-day process (TRU), and the addition of facilitation techniques to the chart development process. The Center's staff has also improved the quality of its charts by careful refinement of techniques and criteria for effective task statements.

B. Curriculum development based upon DACUM charts

The Curriculum Planning Process was developed, refined and applied to a number of settings through the DRC. A manual has been produced and copyrighted, and activities and techniques to enhance the CPP workshops have been incorporated into the training and materials. This component of the DACUM processes continues to be highly regarded as an efficient and effective tool for processing DACUM chart information into curriculum plans.

C. Instructional development for trainees in DACUM process

This component of the DACUM process has also been conceptualized and refined as a direct response to participating institutions' requests for instructional development activities that would complement their own while addressing the information generated during the first two phases. The evolution of the process has been less extensive due to the need to develop practical instructional development "tools" for a variety of credit and non-credit faculty and staff and to insure that these approaches were complementary to the participating institutions existing instructional development philosophy and practice. That challenge has resulted in extensive and continuing re-design of the content and activities to make it better adapted to program directors, instructional faculty and non-credit program designers on a much more individualized level. The original thoughts about how best to deliver this product have also been changed to be more responsive to individual and campus needs.

D. **On-site training of facilitators/coordinators**

This activity has been improved considerably over the past four years. We provide clients with an orientation that allows them to more fully integrate the training with their on-going activities. We have developed criteria that colleges can use to select appropriate training participants. The preliminary training has been improved by the addition of simulations and application exercises, and by the restructuring of the didactic and observation components. Practice and experience with a range of clients has allowed the on-site training to become more tailored and more adaptable to each organization's needs, and the evaluation instruments and reports have been refined over this period.

II. Networking

A. **A catalog listing all Maryland DACUM charts prepared and disseminated.**

The catalog listing exists, and has been made available upon request to a variety of individual, organizational and agency request.

B. **Active liaison maintained with other curriculum networks both within and beyond Maryland.**

We are linked to several curriculum networks and resources:

- o We have established reciprocal chart exchange services with the East Central Curricula Network of NVCCVTE, Humber College's DACUM Exchange, Spokane Community College and Holland College.

- o We have maintained, through MD DVTE, access to a variety of task list information from a number of states (V-Tecs, Illinois, Oklahoma, Georgia and others).

- o We have established a networking agreement with Open Entries in which the opportunity to highlight services and activities of Maryland DACUM Resource Center participating institutions is made available by Open Entries. The DRC maintains subscriptions for its participating colleges to encourage this networking opportunity.

- We have established working ties with The Center for Education and Training for Employment (CETE - Ohio State) and the Eastern Regional Competency-Based Education Association as means of promoting networking among DACUM users. We have also established ties with the Center for Instructional Development and Education (University of Maryland, University College) and the Instructional Systems Design graduate program at University of Maryland, Baltimore County.

- We are sponsoring a pre-conference workshop during the ERCBE conference highlighting DACUM innovations and applications. The panelists will come from around the nation, and represent a variety of DACUM activities.

C. Linkages established and maintained with local groups such as: Local Advisory Committees, Directors of Vocational Education, Deans/Directors of Occupational Education.

We have formal local linkages established through the Maryland DACUM Resource Center Advisory Committee. We have established informal linkages with a variety of groups through relationships with participating institutions, and presentations to a variety of groups. These informal linkages have included secondary and post-secondary faculty and staff, State Board for Community Colleges, Maryland Department of Economic and Employment Development, Baltimore County Economic Development Department, Local Advisory Committees, Statewide Institutional Deans groups, and local employer groups.

III. Technical Assistance for Participating Institutions

A. Training for college personnel, staff development and in-service training to college personnel as requested.

Technical assistance in this area has taken a variety of forms. It has included work in developing and consulting with on-campus coordinating groups, presentations to a variety of faculty and staff groups to increase acceptability of DACUM activities, additional orientation activities upon request, and working with on-campus groups to develop modifications to fit special circumstances or needs. We have also provided facilitators with the opportunity to apply their skills to special projects at DRC, and to benefit from the experiences of others through an annual facilitators exchange.

B. Consultation services provided to assist DACUM personnel upon request.

Consultation services have followed patterns similar to III A (above). The DRC has honored individual circumstance, as well as organizational requests for consultation about a specific application or modifying DACUM approaches to fit particular circumstances.

IV. Please provide a listing of all participating community colleges and the levels of training provided to each.

See attached.

Participating Community Colleges
and
the Levels of Training Completed

College	Phase I	Phase II	Phase III
Allegany Community College	X		
Anne Arundel Community College	X	X	X
Catonsville Community College	X	X	
Cecil Community College	X	X	X
Charles County Community College	X	X	X
Chesapeake College	X	X	
Community College of Baltimore	X	X	
Dundalk Community College	X	X	X
Essex Community College	X	X	
Garrett Community College	X	X	X
Hagerstown Junior College	X	X	
Harford Community College	X	X	
Howard Community College	X	X	
Prince George's Community College	X	X	
Wor-Wic Tech. Community College	X	X	X

Phase I's by Others

Chart Title	Phase I Facilitator	Phase I CoFacilitator	Date	Organization	Chart Type	Phase II ? Date?	Phase II Facilitator	Curriculum Type	Copies?
Accountant - Paraprofessional	Mike Gray	Walter Yurek	5/27-28/86	Wor-Wic Tech Community College	DACUM				Y
Accounting Clerk	Vivian Miller		5/3-4/88	D. C. Public Schools	DACUM			Secondary	Y
Accounting Technician	Sue Ferenz		4/19-20/89	Cecil Community College	DACUM	Y - 5/10/89	Ray Duvall		N
Administrative Secretary	Tom Kierstead		5/9/89	Garrett Community College	TRU			Revised	N
Administrative Technician	Bill Babner		10/19-20/88	Cape Cod Community College	DACUM	Y	Allan Broadhurst	New	Y -1
Applications Programmer	Dottye Burt	Janet Hignett	11/19-20/85	Essex Community College	DACUM				Y
Artificial Intelligence	Gloria Holland		7/13-14/88	Dept. of Defense (AACC)	DACUM			New	N
Auto Body Repair	Richard V. Miller		12/9-10/86	Harford Community College	DACUM			Con. Ed.	Y
Auto Parts Technician	Susan Ferenz	Rick Mitchell	12/9-10/87	Harford Community College	DACUM	Y - 2/17/88	Jim Bruns	New - Training	N
Automotive Body Technician	Jeannette Fraser		3/1/88	Williamsport Area Community College	DACUM	Y - 4/7/88	Jeannette Fraser	Revised	N - E
Automotive Technicians	Jeannette Fraser		7/22-23/87	Williamsport Area Community College	DACUM	Y - 7/30/87	Jeannette Fraser	Revised	Y
Bio Technician	Mark Goldman	Suzanne Behr	11/29-30/88	Community College of Baltimore	DACUM	Y - 12/16/88	Elizabeth Warbasse	Revised	N
Business Management	Brenda Boleyn		4/11-12/89	Cape Cod Community College	DACUM	Y	Allan Broadhurst	Review	Y -1
Chemical Lab. Technician	Chris Valukas	Ed Boas	12/9-10/86	Cecil Community College	DACUM	Y - 2/2/87	Jim Bruns	New	Y
Clerk Typist	Cassandra Hall	Esther Hamilton	4/87	D. C. Public Schools	DACUM	Y - 5/29/87	Liggins/Miller	Secondary - New	N
Computer Operator	Calvin Becker	Peggy DeStefanis	11/16-17/88	Charles Co. Community College	DACUM	Y - 11/29/88	Julia Draus	Revised	N
Computer Technician	Richard Miller	Ron Upperman	8/86	Harford Community College	DACUM	Y-8/86	Penny Alexander	Revised	N
Construction Supervisor	Tom Kierstead		2/22-23/89	Garrett Community College	DACUM			New	N
Core Competencies - AAS	Jeannette Fraser		10/29-30/87	Williamsport Area Community College	DACUM	Y - 12/14,17/87,	Jeannette Fraser	Other	Y
Core Curriculum	John Low		4/14-15/88	Cape Cod Community College	DACUM	Y - 4/21/88	David Flumbaum		Y -1
Data Processing Technician/Progr	David Flumbaum	Mike Gray	6/17-18/85	Wor-Wic Technical Community College	DACUM				Y
Dental Lab Technician	Dolores Parker	Irene Woodard	1/13-14/88	D. C. Public Schools	DACUM	Y - 1/28/88	Dolores Parker	Secondary	Y
Developmental Disabilities	Calvin Becker		2/14-15/89	Charles Co. Community College	DACUM	Y - 3/3/89	Carolyn Carlyle	Revised	N
Drafting	Debra Kooistra	Deborah Grossman-Garb	1/18-19/89	Charles Co. Community College	DACUM	Y - 2/10/89	Julie Draus	Revised	N
Early Childhood Education Specialist	Jeannette Fraser		8/5-6/87	Williamsport Area Community College	DACUM	Y - 8/20/87	Jeannette Fraser	New	Y
Electronic Data Processing	Gloria Holland		2/16-17/88	Anne Arundel Community College	DACUM			New	Y
Electronic Technician	Sylvia Liggins		3/8-9/88	D. C. Public Schools	DACUM			Secondary - Revised	Y
Emergency Medical Care Technology	Carol Kingsmore		2/11-12/88	Essex Community College	DACUM			Revised	N
Engineering Tech.	Peggy DeStefanis		3/23-24/88	Charles County Community College	DACUM	Y - 4/13/88	Athena Miklos	New	N
Equine Science	Chris Valukas		4/27-28/88	Cecil Community College	DACUM	Y - 5/9/88	Penny Alexander	Revised	N
Food Science Technician	Beverly Reynolds	Carol Kingsmore	3/19-20/87	Essex Community College	DACUM			New	Y
General Education Component	Mike Gray	Walter Yurek	6/9-10/86	Wor-Wic Tech Community College	DACUM				Y
Hotel/Motel Management	Joan Eastlund	Patti Franklin	4/6-7/88	Black Hawk Community College	DACUM				Y
Human Service	Mike Gray		10/31/86	Wor-Wic Tech Community College	DACUM				Y
Human Services Specialist	Bo Myers	Steve Zabetakis	4/8-9/87	Hagerstown Junior College	DACUM	Y	Steve Zabetakis	New	Y
Human Services Worker	George Edmonds	Margaret Gilbert	6/10-11/86	Catonsville Community College	DACUM	Y	Penny Alexander		N
Industrial Maintenance Technology	Paige Russell	Jim Distler		Chesapeake College	DACUM				N
Industrial Technicians	Jeannette Fraser		5/27-28/87	Williamsport Area Community College	DACUM	Y - 7/8/87	Jeannette Fraser	Non-credit	N
Jr. Programmer	Suzanne Behr		5/9-10/89	Community College of Baltimore	DACUM			Revised	N
Mailroom/Mail Plant Worker	Mark Goldman		2/28 - 3/1/89	Community College of Baltimore	DACUM	Y - 3/13/89	Tom Hooe	New - Training	N
Materials Coordinator	Walter Yurek		12/9-10/87	Wor-Wic Tech Community College	DACUM	Y - 1/15/88	Penny Alexander		Y
Microcomputer/Elec. Typewriter Servic	Richard Miller		4/20-21/87	Harford Community College	DACUM			New- Con. Ed.	N - E
Networking	Raj Gill	Gloria Holland	11/14-15/88	Dept. of Defense (AACC)	DACUM			New	N
Nursing Assistant	Sylvia Liggins	Vivian Miller	5/5-6/87	D. C. Public Schools	DACUM	Y - 5/27/89	Hamilton/Hall	Secondary - revised	N
Nursing Program	Brenda Boleyn	Richard Rand	10/17-18/88	Cape Cod Community College	DACUM	Y -	Gail McCormick	Review	Y -1
Office Manager	Susan Ferenz		3/22-23/88	Cecil Community College	DACUM		Rick Mitchell	Revised	N
Office Technology	Margaret DeStefanis	Audrey Ware	12/8-9/87	Charles County Community College	DACUM			Revised	Y
Photography	Pam Cornell		3/15-16/88	Howard Community College	DACUM	Y - 3/18/88	Betsy Alexander	New	N
Pre-Press Printing	Paige Russell		10/89	Chesapeake College	DACUM			New- Con. Ed.	
Prepress Technician	Jeannette Fraser		3/22-23/88	Williamsport Area Community College	DACUM	Y - 4/8/88	Jeannette Fraser	Revised	N -E
Press & Bindery	Paige Russell			Chesapeake College	DACUM			New- Con. Ed.	
Pressman	Jeannette Fraser		2/23-24/88	Williamsport Area Community College	DACUM	Y - 4/8/88	Jeannette Fraser	Revised	N -E
Printing Press Operator	Esther Hamilton		3/1-2/88	D. C. Public Schools	DACUM			Secondary	Y
Resort Hotel/Motel	Charley Coleman	Tom Kierstead	11/15-16/88	Garrett Community College	DACUM	Y - 12/9/88	Kevin Dodge	Revised	Y
Restaurant Management	Bill Babner		4/4-5/89	Cape Cod Community College	DACUM	Y	Barbara Fitzpatrick	New	Y -1
Retail Management	Gary Durr		4/2-3/87	Allegany Community College	DACUM				Y
Retail Manager	Audrey Ware		4/5-6/88	Charles County Community College	DACUM	Y - 4/88	Julia Draus	New	N

Phase I's by Others

Chart Title	Phase I Facilitato	Phase I CoFacilitato	Date	Organization	Chart Type	Phase II ? Date?	Phase II Facilitato	Curriculum Type	Copies?
Retail Sales Associate	Deborah Grossman-Ge		5/9-10/89	Charles County C. C.	DACUM	Y - 5/23/89		New - Con. Ed.	N
Retail Sales/Cashiering	Sheila Lillis	Gene Masters	1/12-13/88	Black Hawk College	DACUM				Y
Salesperson	Cassandra Hall		4/12-13/88	D. C. Public Schools	DACUM			Secondary - Revised	Y
Secretarial Program			5/89	St. Louis Community College	DACUM	Y-5/24/89	Jim Bruns		
Security Officer	Betsy Alexander		4/26-27/88	Howard Community College	DACUM	Y - 5/10/88	Pam Cornell	New-Training	N
Small Business Management	Carol Kingsmore		10/7-8/87	Essex Community College	DACUM			Revised	N
Stage Technician	Pamela Cornell	Betsy Alexander	12/2-3/87	Howard County Community College	DACUM	Y - 12/15/87	Betsy Alexander	New	Y
Systems Engineering Technician	Raj Gill	Gloria Holland	12/2-3/87	Anne Arundel Community College	DACUM	Y - 12/17/87	Kathy Happ	New	Y
Telecommunications	Raj Gill	Gloria Holland	10/24-25/88	Dept. of Defense (AACC)	DACUM			New	N
Word Processing	Raj Gill	Gloria Holland	5/5-6/88	Anne Arundel Community College	DACUM			New	N

Phase II's by Others

Chart Title	Organization	Phase II ? Date?	Phase II Facilitat	Curriculum Type
Accounting Technician	Cecil Community College	Y - 5/10/89	Ray Duvall	
Administrative Technician	Cape Cod Community College	Y	Allan Broadhurst	New
Auto Parts Technician	Harford Community College	Y - 2/17/88	Jim Bruns	New - Training
Automotive Body Technician	Williamsport Area Community College	Y - 4/7/88	Jeannette Fraser	Revised
Automotive Technicians	Williamsport Area Community College	Y - 7/30/87	Jeannette Fraser	Revised
Bio Technician	Community College of Baltimore	Y - 12/16/88	Elizabeth Warbasse	Revised
Business Management	Cape Cod Community College	Y	Allan Broadhurst	Review
Chemical Lab. Technician	Cecil Community College	Y - 2/2/87	Jim Bruns	New
Clerk Typist	D. C. Public Schools	Y - 5/29/87	Liggins/Miller	Secondary - New
Computer Operator	Charles Co. Community College	Y - 11/29/88	Julia Draus	Revised
Computer Technician	Harford Community College	Y-8/86	Penny Alexander	Revised
Core Competencies - AAS	Williamsport Area Community College	Y - 12/14,17/87,	Jeannette Fraser	Other
Core Curriculum	Cape Cod Community College	Y - 4/21/88	David Flumbaum	
Dental Lab Technician	D. C. Public Schools	Y - 1/28/88	Dolores Parker	Secondary
Developmental Disabilities	Charles Co. Community College	Y - 3/3/89	Carolyn Carlyle	Revised
Drafting	Charles Co. Community College	Y - 2/10/89	Julie Draus	Revised
Early Childhood Education Specialist	Williamsport Area Community College	Y - 8/20/87	Jeannette Fraser	New
Engineering Tech.	Charles County Community College	Y - 4/13/88	Athena Miklos	New
Equine Science	Cecil Community College	Y - 5/9/88	Penny Alexander	Revised
Human Services Specialist	Hagerstown Junior College	Y	Steve Zabetakis	New
Human Services Worker	Catonsville Community College	Y	Penny Alexander	
Industrial Technicians	Williamsport Area Community College	Y - 7/8/87	Jeannette Fraser	Non-credit
Mailroom/Mail Plant Worker	Community College of Baltimore	Y - 3/13/89	Tom Hooe	New - Training
Materials Coordinator	Wor-Wic Tech Community College	Y - 1/15/88	Penny Alexander	
Nursing Assistant	D. C. Public Schools	Y - 5/27/89	Hamilton/Hall	Secondary - revised
Nursing Program	Cape Cod Community College	Y -	Gail McCormick	Review
Photography	Howard Community College	Y - 3/18/88	Betsy Alexander	New
Prepress Technician	Williamsport Area Community College	Y - 4/8/88	Jeannette Fraser	Revised
Pressman	Williamsport Area Community College	Y - 4/8/88	Jeannette Fraser	Revised
Resort Hotel/Motel	Garrett Community College	Y - 12/9/88	Kevin Dodge	Revised
Restaurant Management	Cape Cod Community College	Y	Barbara Fitzpatrick	New
Retail Manager	Charles County Community College	Y - 4/88	Julia Draus	New
Retail Sales Associate	Charles County C. C.	Y - 5/23/89		New - Con. Ed.
Secretarial Program	St. Louis Community College	Y-5/24/89	Jim Bruns	
Security Officer	Howard Community College	Y - 5/10/88	Pam Cornell	New-Training
Stage Technician	Howard County Community College	Y - 12/15/87	Betsy Alexander	New
Systems Engineering Technician	Anne Arundel Community College	Y - 12/17/87	Kathy Happ	New

Dundalk Community College Charts

Chart Title	Phase I Facilitator	Phase I CoFacilitator	Date	Organization	Chart Type	Phase II ? Date?	Phase II Fac	Curriculum Type
Accountant - Paraprofessional	Dave Flumbaum		9/30 - 10/ 1/86	Dundalk Community College	DACUM	Y - 10/9/86	Tom Sepe	Revised
Administrative Office Coordinator	Frank Pinter		7/11-12/89	Dundalk Community College	DACUM	Y-7/27/89	Ed Fangman	Revised
Administrative Technician	Nancy Jones	Dennis Faber	12/ 7-8 /83	Dundalk Community College	DACUM	N		Revised
Arts & Sciences I	David Flumbaum		9/22-23/83	Dundalk Community College	DACUM			Revised
Arts & Sciences II	Dave Flumbaum		12/8-9/83	Dundalk Community College	DACUM			Revised
Automated Systems Technician	Cindy Peterka		11/18-19/86	Dundalk Community College	DACUM	Y - 12/4/86	Jack Leddon	New
Cardiovascular Technician	Rosemary Klein	Janice Trefren	12/10-11/85	Dundalk Community College	DACUM			
Child Care Provider	Nancy Jones	John Low	9/29-30/87	Dundalk Community College	DACUM	Y - 10/14/87	Penny Alexande	Revised
Classified Employees - Clerical	Nancy Jones		3/31 - 4/1/87	Dundalk Community College	DACUM	N		Internal - job descri
Classified Employees - Plant Oper	Nancy Jones		5/27-28/87	Dundalk Community College	DACUM	N		Internal - job descri
Classified Employees - Technical	Nancy Jones		5/19-20/87	Dundalk Community College	DACUM	N		Internal - job descri
Community Organization & Leadership	Dennis Faber		10/16-17/86	Dundalk Community College	DACUM	Y - 10/23/86	Ginnie Streamer	New - Option
Computer Programming Technology	Jack Harris		1/20-21/83	Dundalk Community College	DACUM	N		New
Computer Programming Technology	Nancy Jones		5/24/88	Dundalk Community College	TRU	Y - 6/2/88	Jim Bruns	Revised
Digital Electronics	David Flumbaum	John Low	12/12-13/84	Dundalk Community College	DACUM	Y - 12/19/84	Jim Bruns	New Option
Division Chair at DCC	David Flumbaum	Dennis Faber	6/9-10/86	Dundalk Community College	DACUM	N		Internal - job descri
Faculty Member at DCC	James B. Hamilton		5/28-29/86	Dundalk Community College	DACUM	N		Internal - job descri
Flonstry Technician	Dennis Faber		7/30-31/84	Dundalk Community College	DACUM			Revised
HVAC System Designer	Nancy Jones		9/26-27/89	Dundalk Community College	DACUM	Y-10/10/89	Jim Bruns	New
Industrial Elec/Electricity Technician	Dennis Faber	Nancy Jones	6/29-30/83	Dundalk Community College	DACUM			
Industrial Maintenance Technology	Dennis Faber	David Flumbaum	10/5-6/88	Dundalk Community College	DACUM	Y - 10/19/88	Penny Alexande	Revised
Instrumentation Technician	Nancy Jones	Janice Trefren	5/21-22/85	Dundalk Community College	DACUM	Y - 5/23/85	Penny Alexande	New
Labor Leader/Representative	Nancy Jones		10/29-30/85	Dundalk Community College	DACUM	Y - 11/4/85	John Hamilton	Revised
Media Specialist	Nancy Jones		2/8/89	Dundalk Community College	TRU	Y - 2/21/89	Jim Bruns	Revised
Media Technician	Vincent Chillemi	David Flumbaum	6/27-28/83	Dundalk Community College	DACUM	N		
Ornamental Horticulture Technician	Jack Leddon	John Low	7/27-28/83	Dundalk Community College	DACUM	N		New
Photographer/Photographic Technicial	Ed Fangman		10/13 - 11/1/8	Dundalk Community College	DACUM	Y - 11/17/89	Dallas Dolan	Revised
Phototypesetting	Cindy Peterka	Martha Smith	4/29-30/86	Dundalk Community College	DACUM	Y	Ginnie Streamer	
Physical Fitness Technology	John Low		3/26-27/85	Dundalk Community College	DACUM	Y - 5/16/85	Jack Leddon	
Power Engineering Technology	Dennis Faber		4/10-11/85	Dundalk Community College	DACUM	Y - 4/12/85	Jim Bruns	Revised
Program Director at DCC	Dennis Faber	Nancy Jones	6/2-3/86	Dundalk Community College	DACUM	N		Internal - job descri
Real Estate	Dennis Faber		11/7-8/89	Dundalk Community College	DACUM	Y - 11/21/89	Frank Pinter	Revised
Special Education Aide	David Flumbaum	John Low	10/10-11/84	Dundalk Community College	DACUM	N		Revised
Special Education Teacher	Nancy Jones		11/8/89	Dundalk Community College	TRU	Y - 11/15/89	Penny Jung	Revised
Supervisor	David Flumbaum		7/30-31/85	Dundalk Community College	DACUM			
Supervisory Manager	John Low		12/3-4/85	Dundalk Community College	DACUM	Y - 12/6/85	Penny Alexande	Revised
Water Systems Technician	Nancy Jones	Rosemary Klein	10/28-29/86	Dundalk Community College	DACUM	Y - 11/5/86	Ginnie Streamer	Revised
Welding Technology	Martha Smith		4/7-8/87	Dundalk Community College	DACUM	Y - 4/22/87	Jim Bruns	

Dundalk Community College External Charts

Chart Title	Phase I Facilitato	Phase I CoFacilitato	Date	Organization	Chart Type	Phase II ? Date?	Phase II Facilitato	Curriculum Type	Copies
Accounting & Bookkeeping	David Flumbaum		10/14/88	DVTE (Calvert Co. C. C.) - DCC	TAP			Secondary	N
Bricklayer	Janet Hignett		2/22/88	DVTE (DCC)	TAP	Y(COP) - 2/24/88	Dennis Faber	Secondary	Y
Building Maintenance Worker	David Flumbaum	Dennis Faber	12/16/87	DVTE (DCC)	TAP	Y-1988		Secondary	Y
Building Maintenance Worker I	John Low	Nancy Jones	11/11-12/86	DVTE (DCC)	DACUM	Y(COP) - 2/3/88	Nancy Jones	Secondary - Revised	Y
Bus Repairman	Janet Hignett		1/20-21/88	MTA (DCC)	DACUM	Y - 2/9/88	Penny Alexander	New - Training	Y-1
Business Data Processing	Dennis Faber		6/11-12/86	DVTE (DCC)	DACUM			Secondary - Revised	Y
Chemical Technician	Dennis Faber	David Flumbaum	7/6-7/88	Johnson Co. C. C. - Kansas(DCC)	DACUM				Y
Child Care Worker	Tom Kierstead		8/25/89	DVTE(DCC)	TRU			Secondary	N
Control Technician	Dave Flumbaum	Nancy Jones	3/18-19/86	Bethlehem Steel (DCC)	DACUM	Y - 3/21/86	Penny Alexander	New - Training Progr	Y
Craftsperson	Dennis Faber		8/9-10/89	B. Frank Joy(DCC)	DACUM				Y
Customer Service Representative	David Flumbaum		8/11-12/87	MVA (DCC)	DACUM	Y - 8/18/87	Penny Alexander	Training Program	Y
Driver	Dave Flumbaum		8/12,19/89	B. Frank Joy(DCC)	DACUM				N
Early Childhood - Day Care Worker	David Flumbaum		4/12-13/88	Cape Cod Community College(DCC)	DACUM	Y	Penny Alexander	New	Y-1
Electrician	Mike Gray	Nancy Jones	5/10/88	DVTE (DCC)	TAP	Y(COP) - 5/17/88	Janet Hignett	Secondary	Y
Electronic Publishing Technician	Nancy Jones		2/6-7/90	DVTE(DCC)	DACUM			Secondary/Post Seco	outline
Electronic Technician	Dennis Faber		4/19-20/88	DVTE (DCC)	DACUM	Y(COP) - 6/1/88	Janet Hignett	Secondary	Y
Environmental Lab Technician	John Low		8/9-10/89	Essex Community College(DCC)	DACUM	Y-8/14/89	Jim Bruns	New	Y
Equipment Operator	Mike Gray		8/12,19/89	B. Frank Joy(DCC)	DACUM				Y
Executive Secretary/Word Processing	David Flumbaum		6/11-12/86	DVTE (DCC)	DACUM			Secondary	Y
First Line Supervisor	David Flumbaum		4/30 - 5/1/84	General Motors - (DCC)	DACUM	Y	Jim Bruns	Training	Y
Food Service/Hotel/Motel Manager	Nancy Jones		6/11-12/85	Harford Community College(DCC)	DACUM	Y - 6/13/85	Jim Bruns		Y-1
Garden Center Worker	Nancy Jones		10/24/89	DVTE-DCC	TAP	Y-2/90		Secondary	outline
General Secretary	Dennis Faber	Dave Flumbaum	10/14/88	DVTE(DCC)-Calvert Co.	TAP	Y(COP) - 10/21/88	Julia Draus	Secondary-Revised	Y
Heating,Ventilation, Air Conditioning/R	Janet Hignett		3/22/88	DVTE (DCC)	TAP	Y(COP) - 4/20/88	Janet Hignett	Secondary	Y
Inspector Planner	Jack Harris		10/4-6/82	Bethlehem Steel (DCC)	DACUM	Y	Curtis Miles	New- Training	Y
Landscape Design-interior	Sue Ferenz		11/15/89	DVTE(DCC)	TAP	Y(COP)-2/19/90		Secondary	
Landscape-exterior	Mike Gray		2/9/89	DVTE (DCC)	TAP	Y (COP) - 6/26/89	Dallas Dolan	Secondary	N
Legal Secretary	David Flumbaum		1/20-21/87	DVTE (DCC)	DACUM			Secondary	Y
Master Millwright	David Flumbaum		9/29-30/83	Eastern Stainless Steel (DCC)	DACUM	Y	Jim Bruns	New - Training	Y
Multi-Skilled Mechanic	Jack Harris		7/13-14/83	W. R. Grace (DCC)	DACUM	Y	Jim Bruns	New-Training	Y-1
Nursery/Greenhouse Worker	John Low		3/16/89	DVTE (DCC)	TAP	Y(COP)-6/26/89		Secondary	N
Occupational Therapy Assistant				Cuyahoga Community College(DCC)	DACUM	Y - 2/2/89	Jim Bruns		N
Plumber	Mike Gray		5/17/88	DVTE (DCC)	TAP	Y(COP) - 5/24/88	Janet Hignett	Secondary	Y
Pre-Press Imager/Assembler	Nancy Jones		12/5-6/89	DVTE - (DCC)	DACUM			Secondary	outline
Preston Trucking DACUM	David Flumbaum		1/13-14/88	Preston Trucking (DCC)	DACUM	Y - 1/20/88	Penny Alexander	New - Training	N
Procurement & Contracting				Harford Community College(DCC)	List	Y-4/27/89	Jim Bruns	New	N
Professional Nurse	Dennis Faber		11/14-15/89	Reading Area Community College(DCC)	DACUM	Y - 12/13/89	Jim Bruns	Revised	N
Property-Casualty Insurance Worker	Nancy Jones		11/11-12/87	Black Hawk Community College(DCC)	DACUM				Y
Residential Carpenter	Rebecca Douglass		2/2/88	DVTE (DCC)	TAP	Y(COP)-3/16/88		Secondary	Y
Residential Electrician	Dennis Faber	Nancy Jones	3/10-11/87	DVTE (DCC)	DACUM	Y(COP)-1988		Secondary	Y
Retail Florist	Susan Ferenz		2/23/89	DVTE (DCC)	TAP	Y(COP) - 6/26/89	Frank Pinter	Secondary	N
Rigging and Erecting	Mike Galiazzo	Frank Pinter	11/2-3/88	Bethlehem Steel Shipyard (DCC)	DACUM	N		Training - Con. Ed.	N
Special Education	Dennis Faber		3/25/88	D. C. Public Schools(DCC)	DACUM	Y - 3 of them			Y
Teacher of Health and Physical Educ.	David Flumbaum		2/22-23/89	University of Delaware(DCC)	DACUM				Y
Truck Driver	Dave Flumbaum		8/12,19/89	B. Frank Joy (DCC)	DACUM			B&I	Y

DVTE = Tech Committee Activity

DACUM RESOURCE CENTER

Status of DVTE Technical Support

Please document the activity which has occurred within each of the following four major categories as stipulated for the 1989-1990 Project:

1. **Host Technical Committees and conduct a Tech Scan Process.**

   a. Technical Committee meetings were held at the College as shown below:

      - Horticulture Technical Committee...9/28/88, 2/27/90
      - Printing Technical Committee.......9/20/89, 5/15/90

   b. A Tech Scan process was successfully conducted with members of the Printing Technical Committee on September 20, 1989. The Tech Scan was facilitated by a members of the DRC staff (see attached).

2. **Facilitate DACUM or TAP Process for six occupational areas.**

   The following activity occurred to meet this objective. The Horticulture Technical Committee recommended only two activities this year.

Landscape Technician	TAP	02/09/89
Retail Florist	TAP	02/23/89
Nursery/Greenhouse Worker	TAP	03/16/89
Garden Center Worker	TAP	10/24/89
Interior Landscape	TAP	11/15/89
Pre-Press Imager/Assembler	DACUM	12/5 & 6/89
Electronic Publishing	DACUM	02/6 & 7/90
Press Operator	TAP	03/27/90

3. **Facilitate Competency Profile Development Panel (COP) in six occupational areas.**

   There was significant change in the activities in this objective. The Printing COP's were deleted as possible activities due to the newness of two of the curricular areas. Rather than pursue something that the DVTE staff felt would not be productive, an alternative activity was proposed to explore the degree to which a 2+2 articulated program might originate from the work of these two panels. That activity is planned for late Spring, 1990.

4. Print Curriculum Packages

The materials from the Horticulture Technical Committee are currently being printed.

DACUM RESOURCE CENTER

Project Evaluation

STATUS OF FY'89 RECOMMENDATIONS

Please document initiative taken to address the three recommendations from the FY'89 Project Evaluation:

1. **Continue to reinforce the role and responsibilities of participating institutions in the DACUM Resource Center programs.**

   As the grant moves toward its final year, and as the involvement of the various institutions has changed given their experiences and development, the responses to this recommendation have, of necessity, been varied. Those responses have included:

   (a) On-site visits by the Project Director and Project Coordinator to each institution involved in the DRC Programs. Those occurred prior to the start of the 89-90 academic year, with the purpose of clarifying institutional needs and expectations, and DRC responses.

   (b) Continued emphasis on liaison activities among DRC staff members and participating colleges.

   (c) Time on the Advisory Committee agenda to discuss roles and responsibilities.

   (d) Mid-year communications to identify unmet or new requests for services for the remaining half-year of the grant.

2. **Refine the Phase III, Instructional Development Training and Support process, providing further definition and clarification.**

   The Phase III activities have undergone a very thorough and thoughtful refinement to better serve the needs of the participating institutions. That refinement has defined and clarified the appropriate material for the different audiences requesting the Phase III training. Participant evaluations of the refined materials and approaches have been extremely positive. (See attached Phase III information.)

3. **Seek support of the Maryland Division of Vocational-Technical Education for continued funding beyond the five-year grant period.**

The Maryland DACUM Resource Center has vigorously pursued future support from the Maryland Division of Vocational-Technical Education (MD DVTE), given two circumstances that are directly affecting this effort. The first is the delay in reauthorization of the federal legislation, and the subsequent impact that may have on MD DVTE funding approaches. The second is a change in leadership with MD DVTE (there is a new Assistant State Superintendent of Vocational-Technical Education) causing a re-examination of all projects and priorities. There appears to be strong and continuing support for a five-year proposal once these initiatives and changes get articulated into more detail. Evidence of that support is the provision of one-year of "transitional" or "bridging" funding at the same level as this year for FY'90. The newly-appointed Assistant State Superintendent for Vocational-Education has requested an in-depth orientation on the DACUM Resource Center (scheduled for March 2). The Center has also tied several of its planned activities to those initiatives receiving attention by state officials, and those have been received with expressions of strong support.

APPENDIX C: Survey Data

DACUM RESOURCE CENTER

Project Evaluation
Phase I and II
Results

Number of Surveys Mailed:	54
Number of Surveys Returned:	28
Return Rate:	52%

Note: Two blank surveys were returned and not counted in the response rate.

I. Background Information

A. Indicate the year(s) and phase(s) in which you have been trained by checking the appropriate space(s):

Phase I: DACUM	1985-86	1986-87	1987-88	1988-89	1989-90	Total
Respondents: #	3	4	7	7	3	24
%	12.5%	16.7%	29.2%	29.2%	12.4%	100%
Phase II: Curriculum		**1986-87**	**1987-88**	**1988-89**	**1989-90**	**Total**
Respondents: #		1	4	6	2	13
%		7.7%	30.8%	46.2%	15.3%	100%
Phase III: Instruction			**1987-88**	**1988-89**	**1989-90**	**Total**
Respondents: #			1	1	4	6
%			16.7%	16.7%	66.6%	100%

B. How many DACUM activities have you facilitated?

Range	Number	Percent
One to Two	13	46.4%
Three to Six	13	46.4%
Seven to Eight	2	7.2%
Total	**28**	**100.0%**

II. Orientation

	Very Effective	Effective	Ineffective	No Basis to Judge
Presentation of the DACUM process (21)	47.6%	47.6%	4.8%	0%
Overview of the DACUM training program (23)	43.5%	52.2%	4.3%	0%
Discussion of the potential impact of training on the college (22)	27.3%	50.0%	22.7%	0%
Discussion of the potential impact of training on program development (21)	38.1%	42.9%	19.0%	0%
Identification of interest among faculty and staff (22)	18.2%	72.7%	9.1%	0%
Discussion of institutional support (20)	35.0%	40.0%	25.0%	0%
Overall (129)	**34.9%**	**51.2%**	**13.9%**	**0%**

III. Phase I Training: Chart Development (Please complete only if you were a participant.)

	Very Effective	Effective	Ineffective	No Basis to Judge
Presentation of DACUM principles (21)	85.7%	14.3%	0%	0%
Development of skills and competencies to coordinate the chart development process (20)	60.0%	40.0%	0%	0%
Development of skills and competencies to facilitate the chart development process (21)	71.4%	28.6%	0%	0%
On-site support and mentoring for the chart development process (20)	75.0%	25.0%	0%	0%
Preparation of the DACUM Chart (19)	63.2%	31.6%	5.2%	0%
Assistance in implementing this process within your organization (20)	75.0%	10.0%	15.0%	0%
Overall (121)	**71.9%**	**24.8%**	**3.3%**	**0%**

IV. Phase II Training: Curriculum Planning Process (Please complete only if you were a participant)

	Very Effective	Effective	Ineffective	No Basis to Judge
Presentation of CPP principles (15)	60.0%	40.0%	0%	0%
Development of skills and competencies to coordinate the CPP development process (13)	46.2%	53.8%	0%	0%
Development of skills and competencies to facilitate the CPP development process (15)	46.7%	46.7%	6.6%	0%
On-site support and mentoring for the CPP development process (14)	85.8%	7.1%	7.1%	0%
Preparation of the Curriculum Plan (13)	61.5%	38.5%	0%	0%
Assistance in implementing this process within your organization (14)	50.0%	28.6%	21.4%	0%
Overall (84)	**58.3%**	**35.7%**	**6.0%**	**0%**

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DACUM EVALUATION
PHASE I AND II EVALUATION
VERBATIM COMMENTS

Orientation

In your opinion, what was the impact of the campus orientation program at your college?

Initially there was a good deal of interest among a few .(We had a good success with Early Childhood Program and Liberal Arts.)

Many saw the introduction of Dacum as unnecessary at best and less than a professional, philosophical approach to academic course development.

A stronger presentation should have been made and reinforced to secure institutional commitment.

Greater awareness of DACUM and its benefits to the college. More time and resources devoted to DACUM.

I don't fault the orientation, but the support at the key levels was superficial at best, with a lot of lip service being paid, but not much substance being offered.

Finally a tool/process for evaluating or implementing programs, and for speeding up the graduation requirements committee procedures.

It was effective as far as it went. But financial pressures were a struggle from the very beginning. A feeling existed among faculty that similar goals could be achieved without the expense involved.

Good overview. However, only direct involvement in the process really allows ownership and understanding to a large degree.

It was effective.

The college was not receptive to the prospect of incorporating the DACUM process into its curriculum development, review or evaluation methods.

The participants had an initial overview presented briefly, but the campus involvement was limited. There was little involvement of the faculty and staff.

Dave made a presentation at our campus in August of 1988. His presentation was very good; however, our faculty do not seem to view the DACUM process favorably. Most of the faculty who participate on the panels seem to value it, but rest seem indifferent. I think many view it as a program the deans are pushing, so they automatically resist it.

I was not involved with DACUM at the time of orientation. My involvement came later.

Created enthusiasm.

I believe this is still a foreign idea to most faculty.

This was held at DCC a long time ago and was not for our campus per se. However, facilitators were recruited as a result of the sessions.

Poor - we really had little idea what it was all about - perhaps due to poor introduction by our people.

Phase I Training: Chart Development

How would you describe the potential of the DACUM process at your institution?

Fading fast!

If Phil Day leaves the campus, I think DACUM will fold. The faculty wa little faith in the process.

We still need to fully implement. Has been most useful for new program development where there is a clear occupation (i.e. a single occupation)

Potential is great especially for Business and Industry training.

We are in a transition period and have not been able to follow through with our DACUM.

The potential is and has been there to be a major force in the development of both credit and non-credit programs. The ability to follow through in implementing DACUM as an integral part of program development has been limited by lack of true support in key positions.

Great! DACUM has been incorporated into the program planning and evaluation process.

Thriving!

I would say the potential is very great. The administration recognizes the value of DACUM and is very supportive of the process. A number of our programs need DACUM.

Not good at this time. Current administration not willing to invest time, support or structure to incorporate DACUM process.

Although we had a slow start, only 5 or so programs since 1985, it seems we are picking up tempo with Title III support (release time paid by Title III).

There is great need for utilization of DACUM process at our school. There is a need to

evaluate "old" programs with limited enrollment. It would give a systematic approach to set goals for new curriculum to keep us more competitive and effective.
Little interest has been shown over the past two years. It is doubtful that any future requests will be made.

Limited.

Potential exists for program revision and updating in the credit area. Potential exist for Continuing Education curriculum development and custom training.

I am real believer and I feel we are making progress.

Very high. We do chart development as part of program development.

It has been formally incorporated into plans for program development/revision.

Very cost saving in terms of the use of extremely limited resources. If this institution would assign the duties in some manner other than an additional duty to an already overworked group, the possibilities are immense.

Excellent.

What has been the impact of Phase I Training on you and your institution?

Those of us who have participated feel (I think) that the process has a great deal of merit. Unfortunately, the institution seems a bit polarized about the process in general - especially in the "Liberal Arts" area - and now there is no money to do the job right.

Mixed - many faculty especially in technical programs welcomed DACUM. Many more were upset to see the process applied to an analysis of core requirements. The word "DACUM" in the same sentence with Liberal Arts causes heated arguments.

Programs that have used DACUM to revise have been very successful in attracting new enrollment. Industry support has been strengthened.

Two new programs developed. One program deleted. Two programs revised.

Positive when we have done it. One program (non-credit) has already achieved national prominence. DACUM provides us with a tool to be responsive to industry needs.

Charts are used extensively. Program development - Good Public relations with community.

Have used it for developing new program and validating an existing one.

I have found it very valuable both for my own professional development and for application to program revision and development (new for my institution.

I find the training very valuable and recognized among other community colleges and State agencies. I used the process to develop a program on behalf of Apprenticeship and JTPA training objectives.

Those departments that have used it are very enthusiastic - there are a few in strong opposition - most at campus think what is DACUM?

Unfortunately, the school (_____) has not made an attempt to follow through with further involvement. They have limited resources and staff who are willing to undertake this project. I do not think the administration, now in the process of even further reorganization, has been able to devote the resources to this process.

Three charts were developed immediately and used during Phase II.

Has had some positive results vis a vis program change and development.

DACUM chart developed for Retail Management.

Slow but sure.

I have become a facilitator.

It has provided us with the tools we need to put together quality, up to date programming. I have found it to be a rewarding experience which has allowed me to grow professionally.

It is really the first attempt at program development other than a haphazard method or without a real framework or reason. For me, the process has made me much more aware of behavioral objectives and competency based programs. The networking in the community has also been very valuable.

Very well received.

What additional support is required to realize the full potential of the process at your institution?

It is perhaps too late. We should have never let restructuring of Liberal Arts be done in DACUM setting.

We need to train facilitators within the Division administration ranks.

Support by the School Board and the Superintendent of Schools. Every reorganization puts vocational education further down in priority and they view this process as strictly voc ed.

Funding mainly.

New administration.

We have strong support from Associate Dean, Continuing Education and Academic Research - the test will come from successful experience on a program development level.

We need more (rather some) release time for faculty to work on DACUM. The people trained share an already overburden schedule of responsibilities. There would need to be a trained coordinator who had time to work on DACUM. You cannot layer this on an overloaded faculty person. There also needs to be an interest on the part of program coordinators and deans.

In my opinion, an orientation of DACUM for the entire faculty would have allowed faculty to see and understand the benefits of this process. Unfortunately, this request was denied and faculty never supported the idea of using DACUM. They never really know what it is.

Money

The training of a second facilitator.

Time

We operationalize the process.

The program now including Phase III training is very complete. Reaching the full potential of the program is now an internal problem, focusing on personnel, time requirements, and the acceptance of the process by campus faculty.

The team members need to have DACUM duties which are a part of their function - not an add on.

Continued awareness.

Phase II Training: Curriculum Planning Process

How would you describe the potential of the Curriculum Design process at your institution?

If there were institutional commitment, it would be a powerful device for development and ongoing evolution of programs and curriculum.

The issues with CPP are masked when training focuses on CPP with a new program. Facilitating CPP for a program revision can be very complex if turf issues are involved.

If this State was not in such financial chaos, the potential for this program would be extremely effective.

I feel the process works! It achieves its goal and is an excellent organizational tool. Because financial support was lacking, this year the process has been put on hold.

Very good. We have conscientious individuals and academic program development staff and strong support from the Dean to approach curricular design through DACUM.

It has been beneficial in some of the programs (technical, business, Continuing Education Programs). One concern of mine is that some divisions are overwhelmed by DACUMs. One department had 2-3 major ones in a couple of years. That resulted in curricula which required extensive revamping. That may have put an undue burden on the department head and faculty. I think our potential probably lies in Con. Ed. now and trying to use it with businesses in the surrounding areas as part of their training programs.

I think it has great potential, especially for contract courses offered by Continuing Education (Area). I think it is also useful for credit course design and evaluation because it speeds up the planning process.

Potential good but needs leadership from the top.

High

Possesses potential if we successfully institute the curricula that have been designed.

Excellent.

What has been the impact of Phase II Training on you and your institution?

Superb experience for me and my curriculum. I have followed through with the process and it has been a win situation on all fronts. The institution is lagging in further implementation of the DACUM process.

This has been the point where institutional potential issues have sometimes tried to overwhelm the process. CPP has worked in these environments-- but it can be very difficult.

It has given me confidence to facilitate other areas in my professional life. If we lose Phil day to Florida, I fear we will lose the impetus to continue with DACUM.

I personally have used the concept in other off campus endeavors. When used at our institution, the process has been well received.

It has been only used twice. I am not in a position to say. The two charts have been done: food Technology - no students at this point. and Office Technology.

I think it has enjoyed moderate success. Some programs have been revised. However, unless we find markets for it outside the college, it will probably not be a dynamic, flourishing part of the college.

Courses have implemented more quickly. I am not sure what the Curriculum Planning Process is. Is that the third Day? Is it the same as Phase II? The terminology should be standardized.

Unfortunately, there seems to be little interest in DACUM.

Very effective in Biotech and Mail Carrier.

I have become a facilitator.

Won't be able to tell until curricula are in place and graduates are employed in the field.

Very well received.

What additional support is required to realize the full potential of the process at your institution?

At this point I would not know what to suggest. I think we might end up with some kind of a modified "Dacum" process. but the whole effort has been abandoned for now.

We have the faculty leadership - interest. We lack financial support/release time.

Institutional money to supply the necessary resources.

More faculty participation.

Institution has not made administrative commitment to the process.

Just need time. Ten programs will be evaluated over the next five years.

Perhaps administrators need more coaching on what within the organization lends itself to the DACUM process. Those involved also need free time to facilitate the process, prepare the final version of the charts, etc. We also need to be in an economic setting that is compatible with DACUM - organizations to which DACUM can be marketed for their internal training. I don't think we have that, so once we apply the process internally, we are exhausted our market except for occasional reviews.

More clerical support is needed. WE cannot get reports issued promptly because we don't have the clerical support we need.

Support from within institution.

We operationalize the process on a regular basis.

More awareness.

How can the DACUM Training program be enhanced or improved?

It started as a vocational approach to develop curriculum. For those programs it seems to work well. That point needed to be emphasized at a liberal arts institution. Without faculty support the process carries no weight.

Phase I DACUM Training is excellent.

Build in the sessions on the variations of DACUM (such as the One-Day Phase I) as part of a total package so that new requests for funding, etc. need not be made in order to attend.

No recommendations. I think it is great and hope we will have the opportunity to use it again soon here.

I am satisfied as it is!

Chart development needs more differentiation of duties and tasks, skills development in such analysis.

Use videos for showing the process in action.

A little more "hands-on" practice developing facilitator skills.

Program excellent.

You might consider adding more information about potential markets and building support within the institution. These things ought to be considered more carefully by the administration so it can intelligently use DACUM to best advantage.

More specific training aimed at illustrating and practicing techniques of panel management. We need some tips on how to handle problem.

Great the way it is! However, there should be a way to insure that those who are traine are committed to instructional design and the DACUM. I have seen the results when the commitment is lacking.

It is very good. We should not become too satisfied with the training, and we should continue to improve, modify and refine it.

Not much - really has to be experienced to be learned.

Sorry. I don't have any suggestions.

Use of videotaping for feedback.

What additional support is required to realize the potential of the process at your institution?

Decision making at the administration level.

Institutional support.

Nothing from DACUM.

Continued encouragement to the administration to continue their support for the process. Help with locating funding. Program to better educate our faculty about the value of the process.

Institution must decide how to interface DACUM process with methods of curriculum development and how to interface DACUM process between institution and business community for maximum return on resources.

Time and proven results.

Institutional commitment to the DACUM Resource Center.

Perhaps more observation of new facilitators following their training.

Money and human resources.

Seems to work fine at DCC.

To what degree has your organization supported the use of these processes?

Seems strong at the beginning. But we never got our act together administratively and then the funding evaporated.

Phil Day sees DACUM as the way to develop curriculum - he has lost some faculty confidence because of it.

Poorly.

DACUM has a hard time here ever since we used it for core curriculum. It has made people leary of it. Hence we have taken a two-year moratorium on it. Soon we will use DACUM again. We still have plans of creating a team of facilitators from the Division Director ranks.

Concept supported but time and staff resources limited.

Support is limited - the State Office support the idea but does not understand the work it involves.

The Division of Continuing Education, while it existed, was the major support of the DACUM process. The currently reorganized divisions have yet to throw their support behind DACUM, and often dismiss DACUM off-handedly without knowing what DACUM is all about. Businesses, however, seem to recognize the value and are continually seeking further information about it.

Not at all this semester as far as program evaluation/development. We are using it February 14 for Graduation Requirements department/college exchange.

Large degree. It has been incorporated into program evaluation process.

Has been pretty supportive so far.

To a very high degree for a small college with limited resources.

Minimal.

Five to six DACUMs since 1985. Ten planned for the next five years.

Mixed support. Organization pays for people to be trained at Dundalk but does not provide release time from other activities for participants to be involved in the process. We do have a DACUM coordinator, which has been a tremendous help. By adding that position, the administration has shown support. Except for those participating in DACUM, faculty tend to be uninterested and oblivious.

The organization has made every effort to support the process, but the time and money limitations often interfere with the full success of the programs. Already overburdened faculty, staff and administrators are asked to devote large chunks of time. Although the process may in the end worth the time investment, in the short term, the day to day time constraints limit faculty's willingness to participate.

Institution lacks money and leadership in curriculum area.

Hundred percent from administration - faculty still unsure of the potential benefit.

Through the resources from the grant we have developed a strong process. When the grant expires, we should continue to support efforts of the DACUM Resource Center both internally and externally.

Our administration has made a full commitment to the process.

Overall, a lot of support.

Full support from the administration in the process. Non-credit director (Dean) somewhat skeptical.

Fully, as I understand it.

DACUM RESOURCE CENTER

Phase III Instructional Development Process

Program Evaluation
Results

Number of Surveys Mailed:	39
Number of Surveys Returned:	16
Response Rate:	41%

Note: One blank survey was returned and not counted in the response rate.

For each of the activities in which you participated, indicate your level of satisfaction with the Phase III Training in each of the following areas by circling the appropriate number for each item:

Orientation to Phase III:

	Participated	**Did Not Participate**
Number:	13	3
Percent:	81.3%	18.7%

	Very Effective	**Effective**	**Ineffective**	**No Basis to Judge**
Provision of preliminary training material (12)	41.7%	58.3%	0%	0%
Integration of DACUM Information (12)	16.7%	83.3%	0%	0%
Application of learning theory to the Instructional Developmental Process. (13)	16.4%	84.6%	0%	0%
Overall (37)	**24.3%**	**75.7%**	**0%**	**0%**

Academic Program Design and Construction:

	Participated	Did Not Participate
Number:	14	2
Percent:	87.5%	12.5%

	Very Effective	Effective	Ineffective	No Basis to Judge
Development of Program Goals and Objectives (13)	46.2%	53.8%	0%	0%
Development of Curriculum Maps (14)	57.2%	35.7%	0%	7.1%
Description of Student Characteristics (13)	7.7%	76.9%	15.4%	0%
Refinement of Course Sequence (Hierarchy) (13)	38.5%	46.2%	0%	15.3%
Development of Techniques for Program Evaluation and Revision (13)	23.1%	61.5%	7.7%	7.7%
Overall (66)	**34.9**	**54.5%**	**4.5%**	**6.1%**

Academic Course Design and Construction:

	Participated	Did Not Participate
Number:	7	9
Percent:	43.8%	56.2%

	Very Effective	Effective	Ineffective	No Basis to Judge
Development of Course Goals and Objectives (7)	2.9%	57.1%	0%	0%
Construction of Learning Hierarchies (7)	28.6%	71.4%	0%	0%
Development of Performance Measures (7)	14.3%	85.7%	0%	0%
Construction or Refinement of Course Syllabi(7)	14.3%	57.1%	14.3%	14.3%
Development of Course Evaluation Techniques (7)	14.3%	42.9%	28.6%	14.3%
Overall (35)	**22.9%**	**62.9%**	**8.6%**	**5.6%**

Training-Program Design, Construction and Implementation:

	Participated	Did Not Participate
Number:	9	7
Percent:	56.3%	43.7%

	Very Effective	Effective	Ineffective	No Basis to Judge
Construction of Learning Hierarchies (9)	44.4%	55.5%	0%	0%
Development of Training Goals and Objectives(9)	44.4%	55.5%	0%	0%
Development of Criterion-Referenced Measures(9)	22.2%	77.8%	0%	0%
Description of Trainee Characteristics (9)	22.2%	55.6%	11.1%	11.1%
Development of Teaching/Learning Styles and Techniques (9)	22.2%	44.5%	11.1%	22.2%
Evaluation and Revision of Instructional Units(9)	22.2%	55.6%	0%	22.2%
Overall (54)	**29.6%**	**57.4%**	**3.7%**	**9.3%**

Indicate your interest in having the DACUM Resource Center continue to provide DACUM activities by circling the appropriate number for each item:

	High Interest	Moderate Interest	Low Interest
Phase I: DACUM Chart Development (13)	53.8%	38.5%	7.7%
Phase II: Curriculum Development (14)	78.6%	21.4%	0%
Phase III: Instructional Development (14)	50.0%	50.0%	0%
Overall (41)	**61.0%**	**36.6%**	**2.4%**
Other (Please Describe) (1)	Provide current directions and keep the process integrity throughout the State.		

DACUM EVALUATION
PHASE III INSTRUCTIONAL DEVELOPMENT PROCESS
VERBATIM COMMENTS

General

What prompted your interest and participation in Phase III Instructional Development Training?

College-wide participation.

To enable me to work on a more even flow with those developing programs. To assist me in better understanding what needs to be done in the process as I provide secretarial support to those developing programs.

My institution made a commitment to participate in Phase III training. Because of my position as a teacher/administrator, I have responsibilities in program development, including instructional development. I also have a personal interest in instructional development.

Participated in Phase I and II DACUM Process.

Having completed Phase I and II training, G.C.C. was interested in learning about program, course, and training design under the DACUM model.

I was very interested in learning a technique to systematically apply the information from Phase I and II to instructional development.

Your training session was offered as a voluntary staff development exercise. Those who develop courses for our division were encouraged to attend.

Attendance was requested by supervisor. I have acted as recorder for DACUM process many times in the past and am sure I will be requested to do so again in the future. Just want to keep myself updated in this area.

Our institution uses the DACUM process for curriculum development. We need Phase III to round out the program.

Responsible for curriculum development and requested additional assistance from the DACUM Resource Center.

Need to develop a format for formally developing a curriculum.

When I was told about the DACUM process, I felt that it could assist me in my position.

Supervisor sent me to workshop.

Need for more structure and information about curriculum development.

Professional Development Day at GCC plus currently revising my program based on a DACUM completed last year.

Phase III instructional Development Training was constructed to assist program and course designers in constructing systematic instructional programs that measurably increase student learning. From your experience with the training, how effectively does the training meet that overall goal?

It appears to that very well. However, I have very limited training with it.

Appears to be effective.

It seems effective. Because of the recentness of the training, I haven't had opportunity to apply too much of it yet.

The training, in my opinion, meets the goal.

G.C.C. has only completed the first segment of Phase III training. We will resume the training on course development in late March.

I feel it is very supportive of that process.

Very effectively, by exploring all aspects of a chosen topic, course designers are better able to meet needs of students.

This does not affect me directly since I don't develop programs. It does help me to understand what those who do develop programs go through during development.

We have not implemented Phase III as yet.

Very effective, but could have used more time on task.

Helped but I needed more background in the process in order for it to help. Frequently not the resources or time to do this for C.E. courses.

Very well.

Training was very effective. It gave individuals a way to use the information they learned and fit well with the current process for state approval of non-credit courses.

Somewhat effective.

Training-Program Design, Construction and Implementation

In your opinion, what was the strongest feature of the training? Why?

The manner in which the material was presented was the strongest. Further, the presenters were interesting and dynamic. They did a wonderful job informing and entertaining us.

Breaking up into small groups and developing programs/courses on a particular subject from choices given to us. After doing the charts, it was interesting and helpful to receive the constructive criticism.

I have not completed all modules of the Phase III training. A fair evaluation is not possible at this time.

Maps provided a picture of curriculum which helped to strengthen concepts.

Having completed Phase I and Phase II training, G.C.C. was interested in learning about program, course, and training design under the DACUM model.

The construction of the program Hierarchy.

The trainee participation. Presented material was made clear by actually developing our own goals, maps, etc.

Working in groups to develop charts.

Staff development. We all need to learn new methods and review old.

Low number of participants - therefore had lots of input from instructor.

Opportunity to interact with others and discuss the process of curriculum development.

Excellent instructors. All of the good information in the world is wasted if not presented in the super manner. The teacher makes the class.

Activity where we constructed learning hierarchies. This forced us to break down the overall task into smaller learning "bits" which makes it easier to develop an effective curriculum for training.

Engaging student involvement. The development of training goals and objectives.

Very interested in curriculum maps and course sequence (hierarchy).

What was the weakest feature of the training? Why?

There was not enough background information provided. Whys is DACUM necessary? How will it affect my classroom? What does it expect to achieve?

Physical location of training - room too bright with fluorescent lights and white glairy walls. Was difficult to understand trainers speed at times.

The creation of specific goals and objectives from the DACUM chart. It was not totally clear.

The initial introduction. I was not totally clear on what DACUM was really about. It became more clear as the training progressed.

Little difficulty in understanding trainers. Some areas needed to be discussed in greater detail. All day training was a little tiring. Physical location of room (White walls with glaring lights) made you feel very tired and spaced out by end of day.

The training is fine. At this end institutional commitment limits what can be done.

Not enough time - could have used two days.

Not enough background about other phases and not enough time to fully develop the process and its application.

Time. I felt that we could have spent several days on this topic.

Wished we had more time to study adult learning styles and how to apply this information to the classroom or training sessions.

Afternoon segment more interesting. Morning was some review of DACUM process which I was familiar with.

How might Phase III Instructional Development Training be improved to increase overall effectiveness?

I suggest no changes.

Better location for training. Shorter period of time. More days.

May be more beneficial to involve persons who have had some previous DACUM involvement.

I cannot respond until all parts of the training are completed.

Be more concentrated.

Longer time frame. There is a lot of material to cover in only one day.

Longer period of time - shorter training periods. Go into greater detail for each topic instead of trying to do all in one day.
Obtain more institutional commitment and provide preliminary information for participants.

Make sure participants are well versed on parts (Phases) I and II.

Have an orientation session with the whole group and then break down into smaller groups for later presentation.

Follow-up sessions or shorter sessions over a period of time with students bringing back completed assignments or activities.

Send more information ahead of time to participants. Require some reading or preparation prior to the workshop.

Morning intro/background session was not very stimulating.

In your opinion, to what degree and in what way(s) will the Instructional Development Training affect the curriculum development process on your campus?

I cannot speak for the others; But as for me, I focus more closely now on individual learning steps and skills. I attempt to evaluate more thoroughly and facilitate in smaller, more specific learning steps.

I have served as DACUM recorder for several DACUM Workshops (ex. gas diesel, equine, chemtech, etc.). Seems to be very instrumental in developing programs.

I hope that it will help to produce programs and courses that address real needs.

G.C.C. has a Learning Enhancement Council (LEC) which reviews and designs curriculum. Some processes on program development, Phase III, will be integrated into the LEC structure for program development.

I am using it in the education curriculum.

Should be very helpful to those who develop courses.

Should tend to tie the process together and make the end process more receptive to "DACUMizing".

Program by program on an individual basis by people who have had training.

It is extensively being used in the credit program.

It will help us to determine what is needed and how to do it.

To date we have not used this method in continuing education classes. It seems too time consuming for short courses. It is expected, however, to be used when developing longer training courses that will not change from term to term.

Simplifies the process. Clearly defines goals and objectives which will enable staff to write these better in the future.

They plan to use the DACUM process review two programs a year.

How could the overall impact of Phase III Training on your curriculum be improved?

It has had a large impact already.

Not sure.

Address non-credit program.

I cannot respond until all parts of the training are completed.

I don't have any ideas.

We would be better able to explore all areas of out topics and be able to narrow topics and be more specific.

Not sure. Need to think about this. See answer to #5 above.

Too early to tell.

More people trained more in depth.

Use the information learned and apply it to a course or program using the learning hierarchies and objectives. Evaluation of course effectiveness against course objectives.

Indicate your interest in having the DACUM Resource Center continue to provide DACUM activities.

Would like specific information on using this method to develop curriculum for non-credit courses and training.

Would like to see workshops held in various regions in the State not just in Baltimore. Eastern Shore would be nice!

APPENDIX D: Interview Data

DACUM RESOURCE CENTER

Development, Achievements, and Impact

Interview Results

I. Development

A. Over the past five years the growth of the Center has been deliberate and planful. The 5-year plan has been implemented almost to a "T". To get on board, people had to buy into the plan. 6 to 8 didn't and are no longer on the team. Risk-taking behavior is key, as is the support of team members. The Center is fast paced, rapid; at 3 years activity increased via implementation.

B. Phase I was easiest to export because it has a very fixed structure; staff knows the program best, it has the broadest application, and it produces the most tangible product. The second and third phases were designed from scratch and represent pure development as does TRU and TechScan.

Publication, presentation and institutionalization have been less successful than implementation due to time constraints and divided attention.

C. Research and development always takes at least twice as long as planned; requires trust; requires testing and refinement; is difficult to fund; and requires consistent, systematic, and professional development.

II. Achievements

A. Major achievements of the Center include the ability to enable others to develop and refine competency-based programs and services; to exceed the requirements of the grant; to capitalize on the systematic nature of the process; and to encourage the influence of business, industry, and government agencies.

B. DRC staff is most satisfied with the development of the three phases of the program, a well integrated package; the interdisciplinary team; the connections with other community colleges in the state; the credibility of the Center; the ability to design instructional systems; program flexibility; and strong team spirit.

Phase III, Phase II (2+2 and 2+2+2), TRU and TechScan require further refinement.

C. TechScan and TRU shows promise because they are focused on economic development; Phase III shows promise for classroom faculty and business/industry trainers; and model elaboration promises new uses for direct service and training.

III. Impact

A. The impact of the Center includes interconnectedness among community colleges; connections with business and industry; process and components; and input from business and industry at the secondary level.

B. The impact of the Center could be enhanced through funding for schools and the corporate environment, computerization and the production of videos and videodiscs, the development of links with economic development and the development of creative applications within and beyond education.

C. Measure taken to ensure long term impact include: national connections, publications, colleagues, grants and corporate funding, the design of business plan, and participation in ASTD.

IV. Future

A. The five most promising initiatives which the Resource Center might undertake in the future include: customized training, secondary applications, TechScan, economic development connections, and formalization and stabilization of the existence of the Center.

DACUM Resource Center
Program Evaluation
Case History

I. Background Information

Anne Arundel Community College, named for the wife of Lord Baltimore II, was founded in 1962. Initially housed at a local high school, the College moved to its own campus in 1965. Located in a fairly affluent suburb of the Baltimore/Washington area, the College is now known as the "Dartmouth on the Severn". The College, now under the leadership of its fourth President, has experienced tremendous growth over the years.

The student population of Anne Arundel Community College numbers approximately 11,000 and is approximately 60 percent female and 8 percent minority. The College prides itself on the individual attention provided for each student and describes itself as 'user friendly'. It is an open admission institution which conducts its registration in the community to ensure access and provides instruction both within and beyond the campus.

The faculty of Anne Arundel emphasize teaching. At present, the College offers over 45 certificate and associate degree programs organized in career paths to allow students to complete a certificate and an associate degree before transferring to the University for the baccalaureate degree.

By and large, programs were developed on the basis of faculty expertise and informal interaction with business and industry. Generally, national guidelines and advisory councils were used to inform program development. The College is rich in technology and offers a very strong computer science program.

Anne Arundel Community College began its work with DACUM three years ago as a result of a DVTE meeting at which Dave Flumbaum made a presentation. Dave was subsequently invited to campus. The process was initially used as a professional development opportunity for faculty in the technology division who were interested in determining whether or not their programs required revision. The most helpful qualities of the DACUM process include the intensity of the process and the time required for completion.

II. Critical Incidents

The first, and most successful application of the DACUM process occurred in 1987 with the development of Systems Engineering, a program on the leading edge of technology. Identified as a priority by a member of the Advisory Board, the faculty needed information first hand from industry for this new technology. A panel was convened which produced a very successful chart and, subsequently, curriculum plan. Following the experience, one of the panelists wrote an article for his company newsletter. The program was implemented in 1989 with five new courses taught by employees of the industry. The most critical factor contributing to the success of this venture was institutional support, especially from the President of the College.

A second successful application of the DACUM process occurred with the revision of the Telecommunications curriculum in 1988. DACUM was selected as the development process because the Division Chair felt that the traditional curriculum was not meeting the needs of technicians. A panel was convened and funded through industry, producing a chart and a curriculum plan which was very different from the traditional curriculum in that it required substantial computer involvement. The program was approved by the state with strong faculty support.

Perhaps the most unsuccessful use of DACUM occurred in the development of the Office Automation program. The Dean of Continuing Education requested customization of the program; however, the faculty were not interested in changing the standard curriculum. As a result, the chart was developed and the curriculum plan was designed. Faculty are presently in the process of revising the lab and implementing an office center model.

DACUM appears to have greatest value in the development of curricula in a new area and in the evaluation and revision of programs. At Anne Arundel, the Arts and Sciences faculty are supportive of the process because they have a vested interest in new program development. They participate in the design of the curriculum plan and their involvement is perceived to be crucial to the success of the process. The DACUM process is located in Continuing Education with two faculty, one in Technology and one in Continuing Education. The process receives secretarial support and other essential resources through Continuing Education. As programs are elected for development and evaluation, DACUM is integrated into the assessment process as appropriate. Approximately 2 to 3 DACUM are projected for completion each year in occupational areas. Additionally, because the process is perceived to have wide application, it has also been tailored and used in other instances. At Anne Arundel Community College, "DACUM is here to stay for program development, review, and evaluation."

DACUM Resource Center
Program Evaluation
Case History

I. Background Information

Charles County Community College was founded in 1958. It is located in a middle class suburban community with pockets of affluence and surrounded by rural areas specializing in tobacco farming. The College currently has 3 off-campus sites, one located in a local shopping mall. Community involvement in the College is high. Residents of the area perceive the College as a strong local resource; with the development of Continuing Education over the past 5 or 6 years, local business and industry has also become more involved with the College.

The student population numbers approximately 5,000 and is predominately female, with an average age of approximately 29. The College is an "acceptable choice" , it is convenient, and the costs are attractive to students. More students attend the College in the evening than during the day. Support services are provided for underprepared students and learning disabled students.

The faculty and staff of Charles County are dedicated and provide 10 to 15 certificate programs and 15 to 20 degree programs, approximately 60 percent of which are transfer and 40 percent of which are career oriented.

Prior to the implementation of the DACUM process, the general experience with program development was "rather painful". By and large, ideas were brokered from other institutions, faculty, and state mandates.

The staff of Charles County heard about DACUM through DVTE and recognized the potential for the process to fill a need to evaluate programs with the business community. The College began to participate in DACUM in 1986 or 1987. To date, staff has been trained in all three phases of the process, beginning with 2 occupational faculty and moving outward. Currently, 3.5 faculty are working on chart development, 2.5 faculty are working on curriculum planning, and 2 faculty are working on instructional development. So far, eight programs have been addressed, two of which were new programs, Engineering Technology and Retail-Clerical, and six of which were revisions of existing programs, Office Technology, Retail Management, Drafting, Computer Operator, Nursing, and Developmental Disabilities.

II. Critical Incidents

The most successful program developed using the DACUM process was drafting because panelists were easily identified and selected, the occupation was easily defined, faculty involvement was high, and local companies provided good resources. Two new facilitators were paired to conduct the panel. The panelists were knowledgeable and given to detail; therefore, they needed to be kept on task. Panelists also had strong personalities which created some tensions. For example, one strong panelist was promoting technology had to be 'handled' by the facilitators. Despite these difficulties, they were handled successfully and the chart produced was good. As a result of the process, specific program recommendations were made, a curriculum plan was produced, and the program will be implemented in the Fall.

A second success story was the development of the Retail Clerk program for Continuing Education. Again, the occupation was easily defined, but, because there are few sizable retailers in the area, panelists had to be drawn from smaller retail operations. As a result, they represented quite a mixed group, both educationally and experientially. The facilitator of the process was a 'wordsmither', and made sure that the chart said what the panel wanted; (s)he was excellent at consensus building. The chart and a curriculum plan were produced and the program was implemented in 1989.

While some difficulties were encountered in the design of a Developmental Disabilities program because the panel was too large, and other problems were encountered in the development of a Total Quality Management program because it was difficult finding panelists, the true "horror experience" occurred in the design of Engineering Technology. The panel was small because it was difficult to find members with experience in diverse areas of engineering technology. Once the process began, the panelists resisted the process, they were highly structured and very quiet, and the panel never coalesced. The job statement was difficult to deal with because it was too broad. When the chart was finally produced, it came out in sequence. While the chart is acceptable, it may be lacking in some areas. During curriculum planning, the panel and the facilitator had problems interacting.

At Charles County, the College has taken ownership of the DACUM process. An internal DACUM Advisory Committee has been established to expand and improve the process. The Committee meets as necessary and is chaired by the appointed DACUM Coordinator, an individual supported through Continuing Education. A resident train-the-trainer program has been established on campus to conduct follow-up observations, and a brochure has been produced explaining and promoting the process on behalf of the College. Faculty have been trained in all three phases of the process, although they feel that instructional development should be handled by the institution. New DACUMS are identified by faculty, linked to the needs of the community, verified as potential areas for development, and supported with the interest of the state and business/industry. The marketability and verifiability of the process are most attractive.

Dacum Resource Center
Program Evaluation
Case History

I. Background Information

Catonsville Community College was founded in 1960 as a comprehensive community college. It is located in a well established middle class residential area outside the Baltimore Beltway; the area also includes some light industry. Historically, the Presidents of Catonsville have remained with the College for about a decade, each developing close contact with faculty and supporting program development. While previous Presidents tended to promote the Liberal Arts, the immediate past President recognized the value of technical programs and continuing education. The College currently has an Acting President and continues to enjoy strong community relations and provide county/state leadership.

The student population ranges between 9,000 and 10,000. The average student age is approximately 28 with males and females evenly represented and a minority population of about 15 percent. The College is currently experiencing an increasing need for assessment and developmental education programs and services. A College-wide reading-writing program has recently been initiated.

Programmatically, enrollments across the Liberal Arts and Occupational programs is about evenly distributed. The College also offers a General Education core curriculum which includes two interdisciplinary courses and is known to have a strong Nurse Education program. However, special initiatives have proven difficult to sustain.

About five years ago, Catonsville established a Curriculum Center to work with curriculum design. While there appears to be no systematic approach to curriculum development at the College, most programs are initiated by faculty and they are generally trusted to make good choices. However, programs are also targeted through market analyses. The Center works with industry to gather necessary data, and with Advisory Boards. Several new programs in the technological area have been developed in this manner.

Catonsville's introduction to DACUM occurred prior to the establishment of the Curriculum Center. Dave Flumbaum was invited to campus and made an initial presentation to about ten people. While staff development is voluntary, since 1985, six people have been trained in the DACUM process through the National Center. Generally, the DACUM process is considered most appropriate for the review of occupational programs and most successful in a structured institution with a strong commitment to the process. Faculty schedules do not lend themselves to participation in the DACUM process.

II. Critical Incidents

The most successful DACUM experience at Catonsville occurred in 1986 with the revision of the Human Services program, a program recognized as requiring attention. Working with the Advisory Board, a strong panel of 12 to 13 eager, interested, and cooperative individuals was convened, and proved easy to manage. A chart was produced and a curriculum plan developed, but the revised program was never implemented due to a lack of interest.

A modified DACUM has also been used successfully with a Production/Control curriculum, and that activity is currently in progress.

Other attempts to use the DACUM process on the main campus have not met with success. Attempts were made to compose panels for accounting and retailing, but panels could not be composed. Generally, because of staffing limitations and other priorities, there is little commitment to the DACUM process at Catonsville and it has not been used for other programs.

DACUM Resource Center
Program Evaluation
Case History

I. Background Information

Garrett Community College was founded in 1972. Located in a very rural community, almost 10 percent of the population participates in the College. While the College has experienced financial difficulties in the past, the current President has built support over the past five years and involved the institution in a substantial outreach effort. As a result, the institution is healthier, stronger, and continuing to grow.

Approximately 3,600 students are enrolled at Garrett. The average student is non-traditional, usually a single parent, and generally older, about 35 years of age. Recently, however, the numbers of traditional student enrolling after high school has increased. Most students commute approximately 15 miles to the College. Some students require developmental support.

The College offers 15 programs, most of which are transfer with substantial Liberal Arts requirements. Career programs address such occupations as office technology, business management, construction, recreation/tourism, and wildlife management. Special programs include LEAP, a developmental program providing increased placement testing and criteria, and New Horizons, a program for the displaced homemaker.

Generally, programs were developed on the basis of instructor initiative and community interest. At one time, the College offered 40 programs; currently the College offers about 15.

The President initially learned of the DACUM process, and the College became involved in 1986. At present, two staff members are trained in chart development, two are trained in curriculum planning, and 14 are trained in instructional development. Additionally, a DACUM team consisting of Phase I and II facilitators, faculty, and administrators collaboratively plans and implements the DACUM process, creating the job title and description, composing the panel, and monitoring the process through to completion.

At Garrett, the questions are: what should we teach and how. In 1987, a Learning Enhancement Committee was also initiated to be composed of the President, a representative from admissions, the chair of curriculum and faculty. The purpose of the Committee is to address format, not content, transforming curriculum plans into proposals for program approval, and ensuring that each program includes an experiential component or practicum.

The most successful DACUM was actually a TRU panel addressing Office Technology. The program faculty invited the review because enrollment was declining and technology was increasing. Faculty provided names for prospective panelists. and a single coordinator managed both chart development and curriculum planning. Given the rural nature of the service area, charts are generally less specialized; however, clarity of focus and utility are critical characteristics of successful ventures. A 10-person panel composed of representatives of county agencies, private businesses, and the College was composed, with each individual having from 15 to 20 years of experience in the field. Charts were collected from the DACUM REsource Center and other locations and merged into a single chart. During curriculum planning concern arose regarding shorthand and computer skill. Additionally, the LEC added a 1 credit, in-house practicum. The program will be implemented in the Fall of 1990. Generally, the staff likes the process because it presents opportunities to bounce new ideas off one another.

A second successful example of Garrett's use of the DACUM process occurred in the design of a Resort Management program designed produce a resort management technician who might serve as an assistant manager, an entry level position. The panel consisted of 12 diverse managers representing food service and inns/special conferencing. Panel members were young, but each had experience in his area. Many members of the panel applauded the idea behind the program, but expressed concerns regarding job availability. During chart development, it seemed difficult to get a handle on the job, and during curriculum planning the College faculty had some difficulties. The LEC reviewed the program, adding practica of 100 hours each term for 1/2 credit and a banquet requirement. The program will be implemented in the Fall of 1990 specializing in food service.

Additional programs developed through the DACUM process include Real Estate, which is currently at LEC and Natural Resources Technician, which is on the way to LEC. A construction supervisor certificate program was also developed; however, due to questions regarding the job market, the program was shelved.

Administrative leadership, commitment, and funding motivated by an awareness of the need for program review have supported the DACUM process at Garrett Community College. The philosophy of DACUM makes it work, because the workers know their fields. At Garrett, DACUM panels bring expertise to a rural setting. However, the DACUM Team has learned to be careful in the design of the job description and to ensure the availability of panelists. While DACUM remains outside the staff job description, it has been integrated into the institution to the point at which Garrett would like to serve as a DACUM outreach center or regional training center.

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